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Wales. 1932.

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*In Series of Reprints
of Scarce Tracts in Economic and Political Science*

TOURS IN ENGLAND AND WALES

(Selected from The Annals of Agriculture)

by ARTHUR YOUNG

1932

TOURS
in
England and Wales

By
ARTHUR YOUNG

SELECTED FROM
THE ANNALS OF AGRICULTURE

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The *Tours* of Arthur Young here reprinted are a selection from those contributed by him to the *Annals of Agriculture*. They have been preferred to the others therein included because they are less concerned with agriculture in its technical aspects and therefore more widely interesting in their subject-matter. In all other respects,—and this is a matter only of degree,—they are typical of the many *Tours* embedded in the forty-five volumes of the *Annals*.

That they may be placed in relationship with similar writings by Arthur Young, it may be recalled that *A Six Weeks' Tour through the Southern Counties of England and Wales*, 1 vol., first appeared in 1768, *A Six Months' Tour through the North of England*, 4 vols., in 1770, *The Farmer's Tour through the East of England*, 4 vols., in 1771. The *Tour in Ireland* covered the years 1776-1779, and the *Tour in France* the years 1787-1789. In addition to these well-known works, Young furnished reports on the agriculture of various counties to the Board of Agriculture, of which he acted as Secretary and propagandist: these reports have been less widely studied. The counties upon which Young wrote were Sussex (1793), Suffolk (1794), Lincoln (1799), Hertford (1804), Norfolk (1804), Essex (1806-7), Oxford (1808).

The *Tours* included in this volume are the work of an experienced traveller and agricultural expert. The earliest of them, the Welsh *Tour*, appeared in the *Annals* in 1792 but was based on observations made over fifteen years before. The last of them, which contains an interesting account of Hull and district, belongs to Young's County-survey period. The other three belong to the period of the French *Tour*.

Readers who wish to follow up this work of Young's will find a useful bibliography of his writings in the *Journal of the Royal Agricultural Society*, vol. 85, 1924. Further bibliographical help can usefully be obtained from W. Frank Perkins, *British and Irish Writers on Agriculture* (Livingston 1929).

A TOUR IN WALES, &c.

By the Editor.

OCTOBER 23, 1776, † landed at Milford haven from Ireland. About the haven the country is chiefly in tillage; the soil a good reddish loam on a red grit stone. They have clover, but no turnips. The whole country as bare of trees as Ireland. Viewed the haven from the high lands above Hubberston: it is a noble basin here, with hanging shores, that want nothing but wood. Sixteen ships added greatly to the scene.

Making enquiries concerning Pembrokeshire in general, the Rev. Mr. Hall, who resided much in it, informed me, that one third of the county is mountain; and that the other two thirds let from 10s. to 20s. an acre; average 15s. That a part of it consisted of a very fine red loam at 20s. excellent for every sort of crop: the other parts clay, or clayey, with a tract to the south of lime stone land. The course of crops most common:

1. Plough up grass land for fallow and lime,
2. Wheat,
3. Pease or barley,
4. Barley or oats,

† I travelled the same country again in december, 1778, and taking fresh minutes, have drawn up this account from both.

5. Oats,

5. Oats,

6. Leave it to grafs and weeds for 5 or 7 years, but few sowing clover.

It is surprifing how, with fuch a rotation, they are able to pay fuch rents. Farms in general are fo fmall that £100 a year is a confiderable one. The whole county is inclofed, without fuch a thing as a common field. The food of the poor, bread and cheefe, with broth made of falt meat, laid in at the cheapeft feafon; much fifh alfo eaten by them. Many keep cows; no goats on the mountains.

To Haverford-West, the foil a rich reddifh loam on flate and clay. I remarked fome wheat on clover. Lime the manure, but not in any quantities.

Half oxen and half horfes univerfal in all the teams. The cottages many of them not a whit better than Irish cabbins, without an equal fhew of pigs, poultry and cows. Labour 8d. in the winter, and 10d. in fummer, the year round. The whole country is in gentle inequalities; and, if wooded, would be beautiful.

PROVISIONS.

Mutton, 3d. per lb.

Beef, 3d. to 5d.

Pork, 3d.

Butter 6d. to 8d.

Chickens,

Chickens, 4d. to 6d.

Turkies, 3s. to 4s.

Geese, 10d. to 10½d.

Potatoes, 2s. to 2s. 6d. a bushel.

The town of Haverford is on so steep a hill, that necks must sometimes be broken in passing it.

To Narbarth. Several cottages building in the Irish way, of mud with straw. The poor people seem well cloathed and fed. They use through all this country small heavy carts with two oxen and two or three horses, the driver sits on the front of the cart, and drives with reins.

Their car is a two-wheeled skeleton, one for corn and hay, but boarded for lime, &c. Has a pole for oxen, two horses draw four barrels of lime, two horses and two oxen five of lime or culm, which is truly ridiculous, much inferior to the Irish car.

The country is generally in tillage, and ploughed tolerably well, but in the low lands good meadow; and I saw some woods. Scarcely any such thing as waste land.

At Slabbard, in the way to Narbarth, rents are from 15s. to 20s. an acre; some rich meadows at 40s. The course of crops,

1. Fallow,

2. Wheat produces 3 to 4 bushels each, at 12 gallons to a strike, and 4 strikes to a bushel,

3. Barley ditto 6 or 7 ditto,

4. Oats 5 or 6 ditto,

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5. Clover

5. Clover 2 or 3 years,
 Customary acre $\frac{1}{4}$ th more than statute.

Wheat yields 7 for 1, on some farms 12 for 1.

Lime they measure by the Irish barrel of 4 bushels, lay 60 an acre on the fallows. It costs 2s. 6d. a load of 5 barrels, and is burnt in perpetual kilns. Farms are all small, from 5 or 6l. a year of which hize there are many in the hands of labourers, up to 60l. which is a large one. Their cattle are all housed in the winter.

Three miles before Narbarth are some extensive woods. That town is prettily situated on the side of a hill with the ruins of an old castle.

The hedges, as well as the cabbins, cars, and barrels, put me in mind of Ireland. They form a bank 5 or 6 feet high and 2 or 3 broad, out of two ditches, and plant the hedge in a row along the top, setting old thorns, &c. to choose, as they form a fence immediately, which I never saw before, general, except near Waterford. In repairing, they clear the sides and mould up the roots, thinning the plants on the top, but either from the dryness of the banks or for want of cutting, many of them make a very stunted unhealthy appearance. There is some plashing, but it is very badly done.

October 24th to St. Clear. From Narbarth to Hubberston the course is,

1. Fallow lime and dung,
2. Wheat,

3. Barley

3. Barley,
4. Clover mow the 1st crop for hay, and plough in the 2d for barley, or else leave it a lay.

Rents 7s. 6d. to 10s. the whole farm through ; to 14s. on some farms. Farms rise to very large ones, but in general small. The Irish cottar system is found here—3 or 4 cottages to a farm of 40 or 50l. a year. They are always at the call of the farmers, they are allowed two or three grafs fields at a moderate rent, a cow or two, but no pigs, unless one in a year, to kill at Christmas. Strangers get in winter 4d. a day, and food ; without food 8d. in harvest 1s. 1s. 6d. and food. They live on bread and cheefe, and milk, or water ; no beer, nor meat, except on a sunday. The culture of potatoes increafes much, more planted last year than ever known before. The poor eat them ; and every cabbin has a garden with fome in it. They put them in the Irish lazy-bed way, on grafs land dunged ; but the best return is by setting them in drills with the plough.

Poor rates 6d. to 9d. in the pound, but reckoned by the plough land.

The use of clover increafes greatly, and some mix trefoile with it. Lime the common manure. It is carried in panniers on horfes 25 miles to the mountains of Carmarthenfhire ; a barrel is from 4 to 5 Winchefter bushels ; 5 barrels to a load ; and

3 to 10 loads to an acre last 3 crops. Price at the kiln 3s. a load. It is burnt with culm raised within half a mile of the quarry. They burn from april to september; never in winter. The effect of it is very great on all soils; it is seen to an inch.

They mow their barley and oats, but bind them into sheaves.

Many sheep are kept in the mountains of 8lb. a quarter; some $5\frac{1}{2}$. They clip from 1lb. to $1\frac{1}{2}$ lb. of wool; of which the stone is 18lb. and sells for 14s. mountain flocks are valued at 3s. 6d. a head round; if very good 5s. 6d. There is a right of commonage over all the mountains of Pembroke and Carmarthenshire. Leafes generally for three lives.

The country towards St. Clear improves greatly, for passing some commons of heath, furz, and fern, at the fourth mile stone, there is a delicious scenery to the left, about Llandowra. There is a beautiful glen, formed by hills, that project in a variety of forms, spread over with oak woods that hang on each side and unite at the bottom. Attention is fully commanded till a sweet vale 3 or 4 miles across opens to view, all cultivation, or meadows of rich verdure: nothing level, but an incessant inequality of surface: a river winds through it that is seen in many places, and neat white houses flated, scattered about, compleat the chearfulness of the scene. The whole is hemmed in by mountains, that
give

the full effect of contrast. A mile further another view to enchant a traveller who is pleased with landscapes. A rich vale watered by a winding river leads between two woody hills; the distant scene innumerable inclosures; further still you come to another vale yet richer, the river opening in finer reaches; the declivities bold, and covered with wood, farms, cottages, stacks, a church and village animate the scene. To St. Clear which is in a charming country situated on a navigable creek.

Through all this country the fewel is culm, or small coal beat into a kind of mortar, with sea-ouze or clay, and then kneaded together by hand, into balls three or four inches in diameter, every time the fire is mended; the cleanly creatures of the fair sex after this lay the cloth, or make the bed.

Lime around St. Clear the great manure, it is laid on the fallows, has been used more than twenty years, yet the benefit is such, that the effect is seen to an inch.

1. Fallow,
2. Wheat, yields 25 to 30 bushels Winchester,
3. Barley, sow 5 and get 40,
4. Pease, sow $2\frac{1}{2}$ and get 25
5. Oats, sow 5 and get 40
6. Clover, 3 years,

D 3

Lime

Lime every where the great manure. There are sixteen or eighteen kilns in St. Clear. The culm is brought by water ; one barrel will burn ten or twelve of lime. They pay 8d. a day for quarrying and burning. Running kilns will burn 40 to 50 barrels a day. The stone is very hard and fine, rises in great single rocks with much sand stone round it. There is no lime stone in Cardiganshire, but plenty in Carmarthenshire. They reckon that it does as well upon wet land as upon dry. They lay it frequently on grafs without ploughing ; it sweetens much ; brings the white clover, and increases the quantity of hay. They carry it on horses, twenty-five and thirty miles into Cardiganshire, where it costs 10d. the Winchester bushel, but they reckon that no corn is to be had without it. Three fourths of Cardiganshire, mountain : one third, or one fourth of Carmarthenshire ; in the latter, in ploughing the mountain sides, they throw every furrow *downwards* with a common, consequently they lose just half the day for want of turnwrest ploughs.

The farms here are small, from 5l. to 100l. four or five teams, at four to a team, half oxen, and half horses, to 100l. a year ; breed the oxen on every farm ; for all calves are reared ; work them at three years old for one or two years, and then sell them : they are shoed, and mowe as well as horses. A horse costs as much as two oxen, yet has very few oats.

Rent of arable land 10s. of grafs 20 to 30s. Tythes 2s. to 2s. 6d. in the pound, and some fo high as 4s. They reckon in the grofs, that rates, tythes, church and highway taxes, come to 5s. in the pound.

Many iron furnaces, the ore dug in the country. The poor people spin a good deal of wool, and weave it into flannel for their own wear, no linen is worn by them, flannel fupplying the place. Query, to the phyficians of the country--Is the rheumatifm known here as much as in other countries where linen is worn? They make cloth alfo for their own wear. Weavers earn 1s. a day, and fometimes more. The poor live on barley-bread, cheefe, and butter; not one in ten have either cows or pigs, fare very poorly and rarely touch meat. Their little gardens they plant with cabbages, carrots, leeks, and potatoes. Rent of a cottage and garden, 10s. to 20s. Building a mud cabbin cofts 10l.

PROVISIONS.

Beef, 3d. per lb.

Pork, 2½d. to 3d.

Mutton, 3½d.

Butter, 7d. 20 ounces.

Potatoes, 1s. 4d. W. bufh.

Chickens, 3d. to 3½d.

Turkies, 1s. 3d.

Geese, 1s. 6d.

Ducks, 5d. to 6d.

Wild ducks, 9d. to 10d. a couple.

Teal, 1s. a couple.

Widgeon, 6d. to 10d. a couple.

Salmon, 1½d. per lb.

BUILDING.

Oak, 1s. to 1s. 6d. a foot, which is 4d. dearer than twenty years ago.

Ash, 10d. to 1s.

Oak bark, 3l. to 3l. 10s. a ton, most of it goes to Ireland, where it sells for 7l. 10s.

A carpenter and mason half a day.

A thatcher, 10d.

October 25, to Carmarthen, the first appearance of which place is very fine, upon some gentle hills, with very bold ones backing it, cultivated on every side to their tops. One mountain in particular, seems to hang over the town in a picturesque manner. The other approach to it from London more striking still; for the road leads just above a fine river that winds fancifully through a vale of rich meadow, scattered with wood. To the left above the town, a bold hill with a few inclosures and a house deliciously situated in a group of trees. The surrounding hills exhibit a waving scene of cultivation. At a distance rugged mountains with a broken outline close in the whole. For three miles together, there is the richest profusion of scenery.

The

The country all the way to Llandilo is fine ; but the picturesque beauties of Newton Castle, the seat of Mr. Rice, are superlatively so. The great feature of the place is that of a very large hill, of the greatest variety of form, rising out of a most fertile vale, every where formed by higher hills, which approach in character to mountains, but are all cultivated. Through this vale winds the large river Towy, which breaks to the eye in beautiful reaches, scattered over almost every part, and apparently so distinct, that it is difficult to believe them the doublings of the same stream.

This vale is formed of a variety of grounds, with woods, groves, hedges, &c. in that sort of confusion which destroys the insipidity of a flat.

The hill which forms the park has scarcely a level acre in it ; no undulating water set in motion by the impulse of contrary wind and tide, could present more various or fantastick forms ; yet nothing rugged.

The hills and slopes melt into each other so happily, that the outlines are all beautiful. The woods of oak are noble ; in some places they sink into hollows, in others, spread over the declivities of the hills, presenting themselves to the eye in the richest masses of shade that contrast the livelier verdure of the undulating lawn. One projection of the grounds is singularly striking, it is a bold promontory that pushes perpendicularly

cularly into the hills; the whole an entire wood of oak: on the summit of its brow, an ivy-bound castle, in such preservation as to be interesting; the aspect is venerable, the situation commanding. From the brow of the hill the vale opens a vast scenery of wood, meadow, water, cultivated hill, and distant mountain; with a hill rising abruptly out of the vale, as if to hold up Driflan Castle for an object; it is a peculiar one. The river makes two great reaches, and a bend immediately under the castle hill, as if to pay its tribute to the genius of ancient Wales. It is a noble view; I counted thirty woods, some of them large.

There is a round tower in the castle almost perfect; an old stair-case leads up to a parapet walk which surrounds the battlements, and commands the whole country: Upon the whole I think this spot the most picturesque residence I have seen in England. Hill and dale, and wood and water necessarily unite to form many beautiful scenes: they are the notes which must every where give the harmony of a landscape, but they are here accompanied with their richest melody.

But these rural beauties did not make me overlook agriculture. Mr. Rice some years ago brought hither a Berkshire bailiff, by whose means he cultivated turnips and cabbages; I saw a field of each, which were good and well managed. He finds them of admirable use in feeding bullocks, and
fat

fat and lean sheep. But for milch cows prefers cabbages greatly, as with care in picking off the dead and rotten leaves, they communicate no ill taste to the butter; for other uses turnips better: he succeeds them with barley, and then clover and wheat, in the Norfolk husbandry; a perfect contrast to the fallows of this line from Carmarthen to Llandilo, which are all succeeded by wheat, and then spring corn in succession till the land is tired.

Land about Llandilo is good and lets well, much at 20s. mountain farms 5s. to 7s. 6d. average to Carmarthen 20s. the hay of the meadows sells at 30s. and those that buy are at all expences of cutting and making. Farms small, to 70l. or 80l. The course,

1. Fallow and lime.
2. Wheat, 12s. to 16s. bush.
3. Barley, 18s. ditto.
4. Barley, 16s. ditto.
5. Oats, 15s. ditto.
6. Clover generally for three years, and then fallow again.

Much of the vale is in tillage, for it is an excellent red, dry, sandy loam: the hills are much wetter, from clay and springs.

Throughout all this country the meadows are carefully watered by trenching and sluicing; the importance of which business, they understand perfectly

perfectly well : they spread lime also upon them to kill rushes.

Thirty horse-loads of lime, at 10d. each, the common dressing for their lands, each 3 bushels, at 10 gallons ; 4d. the load at the kiln, 4 miles off. They carry it 33 miles into Cardiganshire, on pony's backs, 3 bushels each.

Every farmer keeps cows, and rears many calves : one of 3ol. a year will have 15 cows, and rear 7 or 8 calves for oxen to plough with. On the mountains they have flocks of sheep to 400, small breed, worth 8s. each. Cardiganshire is a great sheep country ; they make their rents entirely by them ; all mountain ones. They there pen their sheep on lay land, then lime and plough it up : Wool 24lb. to the stone, at 18s. or 20s. a stone.

Among the poor there is a little spinning and weaving of flannel, for few of them wear linen ; they all manage to buy some wool, spin and send it to the weavers, who earn 1s. or 1s. 3d. a day. Some spin hemp and flax for canvass sacking. Many in the mountains knit stockings, which are bought up at small fairs, and carried to Worcester, &c. They live upon barley or oaten bread and cheese. Most get meat once a week : very few keep cows, but some have pigs fed on acorns. No cottars here ; only in Pembrokeshire.

Labour 9d. a day the year round ; 20 years ago was at 6d.

Carpenters

Carpenters and masons, 1s. 6d.

Thatcher, 1s.

Poor rates have risen from 9d. to 1s. 2d. in the pound.

Leases, 7, 21 years, and 3 lives.

PROVISIONS.

Beef, mutton, and pork, $2\frac{1}{2}$ d. per pound.

Butter, 7d. 20 ounces.

Potatoes, 3d. for $2\frac{1}{2}$ gallons.

Cheese, $2\frac{1}{2}$ d. to 3d.

Chickens, 2d. to $2\frac{1}{2}$ d.

Turkies, 1s.

Geese, 8d.

Ducks, 5d.

Salmon, 1d. to $1\frac{1}{2}$ d. per pound.

BUILDING.

Oak, 1s. a foot ; 20 years ago, 4d. to 6d.

Ash, 9d.

Their own spruce fir, 7d. very good ; almost as white as Norway deals.

Not one third of Carmarthen mountains ; in Brecknock not more. In Radnorshire more than half, and the same in Cardigan.

Before

Before I quit Llandilo, I should observe, that it is a proper post from which to take a tour to see the romantick parts of Wales; in this route, *viz.*

To Aberestwyth and Plynlimmon; Maluntyth, in Montgomeryshire; Towymaronith, Dolgethly and Caeridderis, Trowsvunyth, Penmawyr, Llamluvny, Carnarvon, Snowdon, Bangor, and so to Chester or Shrewsbury. Hughs, the landlord at the Red Lion, at Llandilo, has attended company this tour, which is through the most hilly and romantic country in Wales.

For 5 horses, 2 boys, himself, and a post-chaise, he charged 2l. 2s. a day. He maintained himself, his boys, and his horses; and travelled one day with another, 20 miles; a horse for himself he did not charge.

October 26, to Llandovry, 12 miles of very fine country; all hills and mountains, but cultivated to the very tops; with fine ranges of wood. The plashing of hedges much improved; many almost as well done as in Hertfordshire. At that place came first to waste Mountain; till then had seen very little from Milford Haven.

To Treacastle all mountain country; one hill six miles up; to the left, higher ones, whose tops are in the clouds. Most of these ten miles uncultivated; these hills let from 3s. 6d. to 5s. an acre, exclusive of the low vales. Many farms from 5l. to 20l. a year; some to 100l. which is
a large

a large one. They take here 5, 6, and 7 crops of corn in succession.

To Brecon, rents rise to 10l. and 12l. and even 15l. besides meadows which are every where high ; near Brecon 21l. a farm there must be very bad indeed to be so low as 5l. round. Lime every where used, but not in such quantities as in Carmarthen and Pembroke : the price 1s. 9d. a tail, of 4 strikes, at 10 gallons. Delivered coals 4½d. to 5d. the bushel, of 10 gallons, at the pit Lu. Near the river Uske, a Mr. Williams has several fields of turnips, which shew what might be done. In above 80 miles I have not seen 20 acres, and none in the hands of common farmers. Passed church, by the road side, surrounded by the largest yews I have seen.

Mr. Longfellow, at the Bell at Brecon, is so good a farmer, that he is secretary to the Brecknockshire Agriculture Society, but which does not flourish so much as I wished to hear it did. They were established in 1752, and were certainly the introducers of turnips and clover, which (turnips at least) are not yet adopted by common farmers. Mr. Longfellow, in common, has had 30 or 40 acres, fed them on the land with sheep and cattle, and had as noble barley after as can be imagined. Beans are unknown in general, but he has usually 20 or 30 acres. In sheep also he has made some exertions ; he bought 20 ewes of Mr. Bakewell,

to which he put a Brecknock tup, and sold the lambs at 2l. 12s. 6d. each: the breed answered exceedingly well. The acre here is $\frac{2}{3}$ of the statute measure.

October 27th, to Crickhovel; passed two more churches surrounded by vast yew-trees. The black hill Pengamvillrin, is all lime-stone, iron, and coal. The ore is come to first, under that the coal, and then the lime-stone; these hills thus rich in materials, hold thus for 20 miles due west, and belong chiefly to the Duke of Beaufort. The river Uske runs through a fine vale, between many hills and mountains. It is 60 miles to Swansea; all coal-ore, and lime-stone the whole way, with many collieries.

Through all this country land lets high, owing to the population of mines. A *cover* of arable which is $\frac{2}{3}$ of a statute acre, is 15s. Meadows from 30s. to 40s. but all watered that are possible to be done, and with the greatest skill and care. They build weirs to raise the rivers; cut master carriers, trenches, &c. and make mounds in every little hollow to catch every drop. Water at all seasons of the year, even when grass is $\frac{1}{4}$ grown if the weather is dry; a sure proof the husbandry is very well understood. The chief time is, however, from Christmas to May. Mr. Bridgwater, at Penyrworlood, near Hay, bought an estate that scarcely produced hay for his stables, but by watering,

ing, has made it as fine a grazing tract as can be. He did 2 or 300 covers. His method was to mud the water before he floated. I wrote to him afterwards for the particulars of his method, but I suppose my letter was not directed right, for I had no answer. Lime and pond mud mixed, are also found here to improve meadows greatly. Lime is 3d. a barrel, of 3 bushels, at the kiln.

Turnips are coming in, but none hoed; they eat them off with cattle and sheep by Christmas, and sow wheat after them on one earth.

Orchards are scarce through this country, considering the vicinity of Herefordshire, but there are some good ones.

The mountain tracts are very extensive, it is, for instance, 20 miles to Hay, and 16 of it are mountains uncultivated. All are common; but the lords of manors give leave for the rent of a fowl or a peppercorn for lives to inclose bits, and these afterwards become their property. The only stock on the mountains are sheep, except a few colts, &c. every man keeps just as many as he pleases.

Mules are coming greatly into use, especially for bringing coals on their backs. A small one costs 8 or 10l. and carries as much as a large horse; asses are also used in great numbers.

The food of the poor people, bread and cheese and milk, or water; some small beer. Meat never, ex-

cept on Sundays. Price of labour, 10d. a day the year round ; 20 years ago, 6d. In harvest 7s. a week.

To shew the general improvement of the country. —20 years ago, there was scarcely any wheat in Brecon-market, now it is a great corn-market.

Rents through this country not so high as before, from 7s. 6d. to 15s. Meadows 25s. to 40s. It is a richer country from Brecon to that place, than it is from thence to Monmouth. For 5 or 6 miles around the town, the soil, is a fine red loam. Farms, from 20l. to 200l. and some rise even to 500l. owing to Worcestershire farmers, with large capitals, coming among them. The course,

1. Fallow,
2. Wheat,
3. Barley,
4. Barley,
5. Clover, 3 years.—Also,
 1. Turnips,
 2. Barley,
 3. Barley,
 4. Clover, 3 yrs.
 5. Fallow.

Orchards here begin to be common, but the produce is not considerable, two or three hogsheds per acre, the price 2l. 2s. to 5l. The finest is the golden pippin next the red-streak. A most barbarous custom they have, which is that of planting beans with a dibble, and yet not setting them in rows.

Meadows

Meadows are all watered with the utmost care and attention.

October 28th to Monmouth. For a few miles the country very hilly and pleasant, as before ; but afterwards has a sombre air ; much furze, and shabby wood ; the soil wet and heavy ; and red loam on rock ; and the inclosures in some places so small, that nothing is to be seen : the cultivation not near so good as in Brecknockshire : even the meadows are not taken such care of. Pass 6 miles of villainous road to Monmouth, after passing the turning off for Chepstow. Rents 7s. 6d. to 12s. Meadows 20s. to 25s. and near Monmouth 30s. to 3l. The situation of that place does not strike me as it did Gray. Carmarthen I think may be preferred to it. Here and there a patch of turnips, but very trifling. They summer fallow for wheat, and then take several crops of spring corn, with some clover. Orchards are here scattered every where.

Leaving Monmouth, pass the Wye, which is here a large river, and this is the most beautiful side of the town. In a mile, come to a very beautiful scene, where the hills fall very boldly to the river ; a reach of which is seen under wood on one side, and cultivated hill on the other ; but notwithstanding there has been no rain for many days, yet is the river a stream of liquid mud. The soil is here a good red arable loam. They

plough strait; and the meadows all watered that can be. Another mile brought me to the Birmingham manufactory for edged tools; six years ago I was here, and they then informed me that 60 men were employed, now only 8 or 10 from deadness of trade. A little higher, the Red Brook works for melting iron ore, from the forest of Dean; and also from Lancashire, into pigs. They burn here sticks less than my wrist into charcoal.

What is remarkable in these works, is their melting over again the bloomery cinders, left many years ago in great heaps as refuse; and such is the superior skill of the present age over the preceding, that they get almost as much iron from them, as from fresh ore.

Enter the great forest of Dean, across which the road leads for 10 miles. It contains a great deal of timber, but few within sight of the road fit for the navy. The beech beautifully fine and strait. Much of it overrun with furze, fern, holly, and bushes. Every body around turn in whatever cattle they please. I remarked the soil particularly, and found little that is bad; much very fine; and such as would answer admirably for corn. Great tracts of very fine sound turnip soils. North to south it is 15 miles over; there are, probably, 90,000 acres in it; incroachments have been great and numerous. Much lime-stone all around.

around. Few countries are more truly rich than this vast waste ; for it contains in the first place, a fertile soil, fine timber, lime, iron, and coals to burn and smelt them.

About Mitchels Dean, 16 miles from Monmouth, land rises from 10s. to 30s. but in general from 15s. to 20s. It is a great bean country : strong heavy land. In the course,

1. Wheat.
2. Beans set by hand in 7 inch rows.
3. Barley.

It is remarkable that these crops form in the other extremity of the kingdom, (east Kent) the round tilth, but in an arrangement, which converts this bad husbandry into good, viz. 1. Barley, 2 Beans, 3 Wheat. On other soils their course is,

1. Fallow,
2. Wheat,
3. Barley,
4. Clover, two years, the first for hay ; the second fed by sheep.

A waggon load of lime for 5 or 6 horses, 15 barrels, each $1\frac{1}{2}$ cwt. which is 7s. at the kiln. A cord of wood, 6s. to 6s. 6d.

Price of labour 5s. a week the year round. Colliers and miners, 10s. to 15s. a week.

The colliers in winter get young furz, chop it in a trough, and give it their horses with great success.

Coal is found within two feet of the surface; but some pits are 300 feet deep.

October 29, to Gloucester, through an orchard country, where the golden pippin claims the pre-eminence for cyder. Passed a fine plantation of Scotch firs, exactly 14 feet square. I could count 40 years growth, they are 60 feet high, and from 9 to 18 inches diameter, 5 feet from the ground.

It was about Gloucester, that I first saw any thing like a farm-yard, with cattle foddered at straw.

Passed that city and its rich vale, of which I have before an account to Frog-Mill, near which place I met with one piece of execrable husbandry, that of breast ploughing a lay (the same operation as for burning) in order that the grass might rot for sowing pease in the spring; the men were paid 5s. an acre. When it is considered, that paring and burning secures a crop of turnips---and consequently barley; and that pease are of all others the most uncertain crop;---promising only when dibbled on a lay on one ploughing---it must be obvious, that this disturbing the turf, and letting loose the whole family of weeds, must make the pease a foul crop, and consequently, mar the course at its very opening.

Rent of the open fields, 6s. to 10s. I observed the farmers in these fields taking pieces in with dead hedges, instead of hurdles, by agreement, in order for a turnip course, after which, open field again.

October

October 30. To North - Leach and Burford. Passed the great inclosure at Sherborne, by Mr. Dutton, for several miles. It has been three or four years doing *. All by walls, $4\frac{1}{2}$ feet high ; the work, 1s. 6d. for the lug of $5\frac{1}{2}$ yards. While open field, this tract of country, let from 4s. to 7s an acre, now at 14s. or 15s. tythe free. It is a noble work, and will advance every private interest that is concerned, at the same time, that it promotes every public one †.

To Bowood, near Calne. For the following account of the husbandry about that place, I am indebted to the kind attention of the Earl of Shelburne (now Marquis of Lansdown) who took every means of having me well informed.

Farms rise from 200l. to 900l. a year, but generally are about 300l. or 400l. The soil is various : just about Bowood, there is much inch sand ; also, tracts of stiff clay, others of stone brash loam ; and the downs are a lightish loam on chalk. Rents from 18s. to 30s. an acre ; average 20s. exclusive of downs, the arable part of which are from 3s. to 5s. but the sheep walk thrown into the bargain with

* Written in 1778.

† Having brought these minutes into a country I have already described more than once before, I shall make a break in the journal here, and unite it with the minutes of another, I took on a different occasion from Bowood, the seat of the Earl of Shelburne, near Calne in Wiltshire.

the rest of the farms. Descending from the downs, is the beginning of what is called North-Wiltshire, which is in general a rich wet loam on clay, or a clay, at from 20s. to 40s. an acre; very little under 20s.

Courses here are,

1. Summer fallow,
2. Wheat,
3. Barley,
4. Oats,

But the most general is,

1. Beans,
2. Barley,
3. Clover,
4. Wheat, which is truly admirable.

About the Downs some farmers have,

1. Turnips,
2. Wheat,

which for that situation is an excellent course.

They plough three, four, or five times for wheat, sow 2, $2\frac{1}{4}$, $2\frac{1}{2}$, bushels per acre, and get from 3 to 7 qrs. an acre, which last great produce I was assured, had sometimes been gained, the average 4 qrs. For barley they plough thrice, sow four bushels in April, and get on an average 5 qrs. For oats they plough but once, sow five bushels and gain 6 qrs. on a medium. For pease they stir twice or thrice; sow 3 or $3\frac{1}{2}$ bushels; but the best pea husbandry here, is that of the Bath gardeners, who
line

line much land for early pease drilled, kept clean, and got off time enough for turnips, which are eat on the land by Michaelmas, for wheat, and it is thus that their finest wheat is gained ; 5 qrs. of pease are sometimes had, which are a very extraordinary crop.

But I should here observe, that the pease thus gained, are drilled by the hoe in rows, 9 to 12 feet asunder ; one drill being sown, the men in making the next cover the seed in the first, and so on ; beans are done in the same way ; and what surprized me, I found much wheat put in, in this manner ; upon ploughing flat for that grain, they strike the drills across the lands. The common price for putting in a crop in this manner is 4s. an acre. Whatever is thus sown, is hand-hoed twice at, 4s. a time.

For turnips they plough as often as necessary to kill the couch, making the land very fine for harrowing it out, raking it in heaps and burning. The quantity sown, is, however, very trifling. If they design the land for wheat, they sow in May, prepare by folding. Clover they generally mow once for hay and once for feed, get from 15 cwt. to 40 cwt. per acre ; they have found that it will burst cows, if they are turned in while it is wet. Some tares they sow for feeding off with sheep.

Sainfoine is pretty much cultivated, near the Downs ; they mow it for hay, get two tons an acre, feed the after-grass with sheep, &c. When it is
worn

worn out, which will be from 12 to 15 years, they pare and burn it for turnips, and then take barley and clover, and reckon that it should be seven years in tillage, before laid again to sainfoine.

Carrots are very much cultivated upon the sand, about Bowood, by the Bath gardeners, there being no sand between that place and Bath. They pay 50s. an acre for it, from May-day to Michaelmas; dig it two spits deep, and sow it broadcast; they get from 3 to $3\frac{1}{2}$ bushels per pole square: the farmers sow some for horses, and give them washed instead of corn, and find it answers very well; after them they sow barley, which yields great crops. This culture of carrots should be extended by the farmers through all the sands and light loams of the country, instead of turnips, for oxen, sheep, hogs, and cows; 3 bushels per pole, are 480 per acre; which would prove more profitable than any thing upon their farms, if they would substitute trench ploughing instead of digging, which is a practice entirely unnecessary. The gardeners also hire these lands for potatoes; they dung for them hoe drills 18 inches asunder; dung the drills, and plant upon it 6 inches asunder; hoe clean twice, at 4s. an acre each time; crop 3 to 4 bushels per square pole; $3\frac{1}{2}$ are 560 per acre, wheat is sown after them.

Copse woods in this country are very profitable; when let they yield 20s. an acre rent; and if a landlord

landlord keeps them in his own hands, he will find no difficulty in making them yield that or something more: they are cut at 12 or 14 years growth; and are sometimes sold standing, at from 15l. to 24l. an acre.

There is a great plenty of marle here, both of blue, white, and a reddish colour; it is not much used, the quantity they lay on is 120, three horse-loads each equal to about a square yard, generally on grafs; they reckon it does much good: the digging and filling costs 1½d. a yard.

As to farm-yard dung, they raise very little, for their cattle are never confined in winter, they eat hay even on wet lands. Coal-ashes they get in the towns for 3s. a load, of 50 bushels; spread them on clover and meadow lands, upon which they are found very serviceable. No foot used. Rags are bought at Calne, at 3½lb. for 1d. they are found very beneficial, some assert them to be best on wet, others on dry lands.

Common town manure, 3d. a load.

Sheep are universally folded on the grafs lands, as well as arable.

Hollow draining is well known, and is one of the greatest improvements they have made; they cut them from 18 inches to 3 or 4 feet deep, at the expence of 8d. to 18d. a pole, digging and filling: the effect is very great. The superfluous water is principally owing to springs. But I must remark, that

that they are entirely ignorant of the way to lay their lands dry, by cutting no more drains than necessary. Many of them are cut down the hills *with* the slope, all which must be entirely useless: they seem to have no notion of going to the spring head, cutting through it, conducting away the water by one oblique drain, and seeing the effect before they proceed: in nineteen cases out of twenty, this lays all the land below quite dry; but they begin at the bottom, and keep draining up the whole side of the hill, which usually is labour lost.

They plash their hedges, which are in general good.

They sometimes lay down land to grass; and at other times their way is to leave the wheat stubble of itself to become a meadow; which is true North American management. Grass land lets at 25s. an acre. It is principally applied to dairying; two acres will summer-feed three cows of the best grass, but in common it takes an acre and half to a cow; the breed here is both long and short horns, but chiefly the former from Warwickshire; but their home-bred milks best; of butter a cow will give 9lb. or 10lb. a week; but the common produce is cheese; the famous North Wiltshire sort. Dairies for this purpose rise to 200 cows, but in general are of 40, or 50. Sixty will make 3 cwt. of cheese every day. They begin to make in April; but no butter
except

except from the whey; this sells at 8d. per lb.

A very good cow will give as follows:

	£.	s.	d.
5 cwt. of cheefe, at 30s.	7	10	0
Whey butter - - - -	1	0	0
Calf - - - - -	0	5	0
Hogs - - - - -	0	10	0
	<hr/>		
	£.	9	5
	<hr/>		

But the average of a dairy, including losses, will not exceed 5l. The cheefe sells at Reading fair at Michaelmas, from 22s. to 40s. per cwt. average 30s. to 35s. in some dairies; or about 4d. a lb. which for cheefe that sells to the consumer at 8d. appears low. Surely better management should be exerted by the farmers to keep this great profit out of the pockets of factors and dealers.

A good cow gives from $4\frac{1}{2}$ to 5 gallons of milk a day; and they reckon that one sow may be kept to twenty cows, and the pigs kept and fattened as hogs. The winter food is hay alone, half a ton per cow.

There are some oxen fattened up to a large fize, from 18l. to 25l. fat. Some are a year and half in fattening; in the winter have oats and hay.

Their swine fatten to 30 score on pease and barley, the pease they grind.

Flocks

Flocks of sheep rise to 2000; the profit is the lamb and wool; the wool 2s. and lamb 16s. 6d. this is in a general way of reckoning; but a part of the produce is an annual sale of ewes, keeping the same number of lambs in lieu of them: this is the universal system, no fattening flocks.

Some particulars of importance concerning this article, given me by Lord Shelburne's shepherd, were as follow.

Fourteen hundred sheep will eat an acre of turnips in a night.

One acre of turnips for sheep is equal to a ton of hay, or 40s.

The rot never known, except in wet lands more to the North.

The sheep on the Bowood sands yield an inferior wool to what comes from other soils, by reason of the reddish sand affecting the colour, and also adding to the weight.

A thousand sheep will fold $\frac{1}{2}$ an acre in a night, which is worth 10s. 6d. or 1l. 1s. per acre.

The Wiltshire sheep are not reckoned so hardy as the Hampshire, yet are they constantly folded the year through.

Long-legged sheep in this part of Wiltshire reckoned better than short-legged; and will sell better: this so much the case, that if 20 are chosen out of 500, they will in general be the longest legs in the flock.

Wethers

Wethers will fatten in common to 26lb. a quarter; and rise generally to 30s. value; but good sheep bought in at two-year-old, and kept a year, will be worth from 40 to 45.

Relative to the breeding system the following, are the particulars of the Earl of Shelburne's flock, which are under the management of an excellent shepherd, and are reckoned a very fine flock.

Total number	- - - - -	840
viz.		
Ewes	- - - - -	320
Year-old ewe	} - - - - -	140
Lambs		
Two-toothed ewes	} - - - - -	60
too young or too		
small to breed.		
Lambs	- - - - -	320
Rams	- - - - -	16
Wethers	- - - - -	4
		<hr/>
		840
		<hr/>

Their food,

200 acres of summer pasture, in which run also 8 horses and 12 cows.

200 Winter pasture,

60 After grafs,

52 Tons of hay,

4 Acres of turnips,

The annual sale is,			£.	s.	d.
180 lambs, at 12s.	-	-	108	:	0 : 0
120 ewes, at 21s.	-	-	126	:	0 : 0
520 fleeces, at 2½ lb.	-	}	47	:	13 : 0
1430 lb. at 8d.	-				
			<hr/>		
			£.	281	: 13 : 0

The fold, if reckoned, would be 10s. 6d. a night per 1000, or 9s. for 840, which is 164l. 5s. Query, if this should be added, as it is all, or nearly all, applied to the land which supports the sheep.—On the downs the system varies from their getting more into turnips.

In tillage, &c. they use both horses and oxen: 4 horses are necessary to 100 acres; 6 oxen they find to do as much work as 4 horses. In a plough, they use 4 horses or 6 oxen, and this on their sand land; they do an acre a day, going 5 inches deep. The summer joist is 1l. 1s. and the allowance of corn, &c. 6 bushels of oats to 4; and 2 cwt. of hay a week. The decline in a horse's value they reckon at 3l. per annum. They give their draft oxen corn when hard worked. Horses they like best.

They stir their stubbles in autumn.

Price of a cart, 4 horses, and 1 man, 8s. a day.

In stocking a farm of 300l. a year, 200 acres, 120 grafs and 80 arable, they calculate as follows,
6 Horses,

	£.	s.	d.
6 Horses, at 15l. - - - -	90	0	0
25 Cows, at 10l. - - - -	250	0	0
50 Sheep, - - - - -	50	0	0
Swine, - - - - -	6	0	0
Harnes, - - - - -	10	0	0
2 Waggon, - - - - -	42	0	0
2 Car, - - - - -	20	0	0
2 Plough, - - - - -	1	10	0
3 Harrow, - - - - -	1	1	0
1 Roller, - - - - -	4	0	0
Dairy utensil, - - - - -	5	0	0
Sundry small implements, - -	2	10	0
Rent, - - - - -	300	0	0
Ty, - - - - -	25	0	0
Rates, - - - - -	75	0	0
Wages, one man, - - - -	7	7	0
Ditto, a boy, - - - - -	4	0	0
A dairy-maid, - - - - -	5	0	0
2 Labourers, - - - - -	35	0	0
Seed Wheat, 20 acres, - - -	16	0	0
Oats, 20, 5 bushels at 2s.	10	0	0
Barley, 20, 4 ditto, at 2s. 6d.	10	0	0
Beans, 20, 3 ditto, at 3s. 6d.	10	10	0
Wear and tear a year, - - -	5	0	0
	<hr/>		
	£. 984	18	0
	<hr/>		

Land sells at 32 years purchase *.

* Written in 1773.

Tythes both gathered and compounded; when the latter, wheat pays from 7s. to 10s. barley 3s. to 4s. oats 3s. clover and meadow 2s. 6d. turnips small tythes.

Poor rates run very high through all this manufacturing neighbourhood; 6s. in the pound is common; but every one, with whom I conversed, asserted, that this was owing to ill management in the officers, and great neglect in the justices; I think, however, there is another cause fully equal to the effect, which is the custom of the landlord paying the rates, they are dispensed by the tenant, and entirely under his management: How, therefore, can any œconomy come into the expenditure while others bear the burthen?

This is a system worthy of Bedlam alone.

The whole country is employed in the woollen manufacture, carried on at Calne, Chippenham, &c.

In every poor cottage tea is drank.

Leases are from 3 to 5 years; but on many estates there are none. A system which can only do where there are no expensive improvements to work, or where the landlord is at the whole expence of such.

LABOUR.

In harvest 1s. 4d. a day, and 3 meals a week; 1 gallon of ale a day, and their small beer.

The same in hay.

In

In winter, 5s. to 6s. a week.
 Reaping wheat 4s. to 7s. an acre.
 Mowing corn 1s. 6d.
 ——— - clover and grafs 1s. 6d.
 Hoeing turnips 3s. 6d. to 4s.
 ——— -beans 4s.
 Dithing and rep hedge 8d. to 1s.
 Digging land one spit 2d. a pole.
 ——— two ditto, 3d. a pole.
 No water furrows in their wheat lands.
 Threshing wheat 2d. per bushel.
 Other threshing by the day.
 Faggoting 2s. per 100, six feet long and 3 feet
 round.
 Farming man's wages 7l. to 8l.
 A lad 2l.
 Dairy-maid 5l. to 7l.
 Other ditto 4l. to 5l.
 Women in harvest 8d. a day and board.
 ——— in hay the same.
 No rise of labour.

IMPLEMENTS.

Broad-wheel waggon 45l.
 Narrow ditto 22l.
 A cart 8l.
 A plough 15s. to 2l.
 A roller 30s. to 5l.
 Shoeing a horse 20d. -

PROVISIONS.

Bread, at Calne, $6\frac{1}{2}$ lb. for 1s.

Cheefe, $3\frac{1}{2}$ d.

Butter, 8d. whey.

Beef, 4d.

Mutton, 4d.

Veal, 3d.

Pork, 4d.

Bacon, 8d.

Milk, $\frac{1}{4}$ a pint, skim.

Potatoes, 8d. a peck.

Candles, 8d. per lb.

Soap, 5d.

House rent, 3os.

No firing bought.

Tools, 10s.

BUILDING.

Bricks, 22s. per 1000.

Oak, 1s. 6d. cheaper than formerly.

Ash, 36s. to 37s. a ton.

Elm, 3os.

Poplar, &c. 3os.

A carpenter, 1s. 6d. a day.

A mason, 1s. 2d.

A thatcher, 1s. 6d.

Dry

Dry walls, 9s. a pole, 7 feet high, for the labour 1 foot of mortar, course in the middle.

Particulars of a farm,

- 150 acres.
- 50 arable.
- 100 grafs.
- 100l. rent.
- 16 wheat.
- 16 oats.
- 16 beans.
- 20 cows.
- 6 horfes.
- 10 young cattle.
- 2 labourers.
- 1 man.
- 1 maid.

Observations. The first object that presents itself, is the course of crops into which the farmers throw their lands. The most general system is, a continued series of corn without the intervention of a fallow, or any other fallow crop than beans; but if a summer fallow is given, which is seldom the case, then to follow it with three crops of wheat, barley, and oats. Too much cannot be said in condemnation of such a system: Beans are an excellent fallow, as managed in Kent: Even about Bowood, they profess to hand-hoe twice; but this is not general; besides, many crops are broad-cast

fown, and not hoed at all ; I saw drilled fields, and from the weeds should judge the management to have been exceedingly incomplete : In their course of, 1. Beans. 2. Barley. 3. Clover. 4. Wheat ; the cleanliness and heart of the land all depends on the farmer straining every nerve to keep the beans like a garden, the earth loose, and perfectly free from weeds ; it is for this purpose, and upon these principles, that the Kentish farmers not only hand-hoe with great accuracy, but repeatedly horse-hoe their crops with various shins. In such complete management, no fallow can be better than beans—with an inferior conduct, none can be worse, except pease. This observation is yet more applicable to another of their courses, 1. Beans. 2. Wheat. 3. Barley. 4. Oats ; to which I attributed many fields I saw of very weedy corn. To speak of beans as a fallow under these circumstances is a difficult task ; to condemn them would be against the clearest principles ; generally to approve them would lead to great abuses : In Kent and part of Essex, nothing can justly be said in opposition to the practice, but in Wiltshire the case is different, good husbandry in most particulars is in its infancy, and the farmers are not at all hurt at weedy crops and exhausted land : were not this the case, we should not see three or four sacks of wheat an acre, in fields, which, thrown into different courses, produce twice as many quarters.

But

But their systems should be viewed in another light: What are we to think of farms, the greater part of which is grass, and the arable thrown into courses that exclude turnips! In counties where husbandry is well understood, the value, and even necessity of turnips, rises in proportion to the quantity of grass; but these farmers conduct their business on principles so contrary, that large tracts of grass have not the accompaniment of a single acre of turnips, though there is arable land in the farms perfectly adapted to that root; and although sheep form in many the principal part of the live stock. The improvement to be recommended, is to make turnips the universal fallow on all lands that are light enough to produce and admit them to be fed off; these turnips to be well prepared for, and all the manure of the farm given to them. The turnips to be followed by barley, clover, and wheat, and nothing more. On strong lands, their own course of, 1. Beans. 2. Barley. 3. Clover. 4. Wheat, is unexceptionable, but with the proviso of the bean culture being excellent, and kept throughout the whole year in the most garden-like culture. This I recommend, supposing they will not come into cabbages, but where there is so much cattle, that vegetable should be the fallow on heavy land; planted on such ridges as will lay the land entirely dry,

At the same time that I am so free in pointing out their errors, I must acknowledge that there are some circumstances in which there are the traces of excellent husbandry among them; their drilling various crops, and sometimes bestowing hand-hoeing on them deserves much praise. I should not apprehend any set of men should experience the effect of this husbandry on a part of their farms, and not be induced to extend it considerably. Another article in which they have also much to commend, is their applying carrots to the food of their horses; this is no great practice yet, but its being known at all is no slight instance of merit. Their hollow draining, and plashing their hedges, are likewise points which deserve much praise.

Sainfoine near the Downs is well known, but by no means carried to the extent it ought to be; the soil is admirably adapted to that grass, yet, where there is one acre of it, there ought to be 500: this is an article of improvement which must come from landlords, for the farmers while they have the Downland for nothing, which is commonly the case, or for 2s. 6d. or 3s. an acre, will never work this improvement easy as it is in large: all downs should be under a course of sainfoine, with no more arable than is necessary for the change: Thus for instance, if the duration of sainfoine is taken at 16 years, then 16 parts of the
down

down should be under that grass, and as many more parts as there are years necessary for tillage before the ground should be sowed with it again ; suppose this period 5 years, which with good husbandry would certainly be sufficient : the portions would then be,

10 Sainfoine,

1 Sainfoine, pared and burnt, and under turnips,

1 Barley, or oats,

1 Clover,

1 Wheat,

1 Turnips,

1 Barley, or oats, and with this crop sainfoine sown again,

—
16
—

These are the proportions, whether they are taken as single acres, hundreds, fifties, or twenties : Suppose twenty-seven each, then there would be 270 sainfoine ; and it will not be difficult to shew, that such proportions may easily be made in the support of cattle to unite for a profitable husbandry.

One of the great objects of the husbandry here, and the greatest in North Wiltshire, is the daires : Cows are there kept to the exclusion of other cattle, and of corn and all arable crops. Such a conduct

duct one would suppose would indicate a most superior profit in cows ; I shall not venture to contradict in any positive terms, what sensible men assure us is the fact ; but as they either cannot, or will not, offer the circumstances upon which they found this conduct, I must take the few facts that have been given me, and by throwing them together, extract as much truth as I am able.

Extraordinary good cows, we are told, without deductions for losses, pay to the amount of 9l. 5s. but they are clearly of opinion, that the average, with the medium of circumstances, do not pay more than 5l. some thought no more than 4l. 10s. : Upon a farm of 200 acres, belonging to — Coburn, Esq. at the rent of 300l. fifty cows were kept, and four horses, for carrying the cheese to Reading fair, this almost the only business as every acre is grass. Now it must be apparent to every enlightened person, that this must be a most unprofitable system : Suppose the cows, instead of 5l. paid one with another 6l. or 300l. a year ; this is no more than mere rent ; and all other expences, with the farmers profit, must come from the other casual articles of a few sheep, a few fat calves, some hay, or I know not what : I was told, that the farmer might make a profit of 50l. a year on the farm ; but the mere value of his own labour, with the interest of the price of his 50 cows, would come to much more than 50l. ; other instances coincided

ded very much with this, and from the whole I am persuaded, that not a groat of profit is made by these famous dairies. But when the particulars of the intelligence concerning cows is analyzed, it comes out the same; the summer feed of a cow is $1\frac{1}{2}$ acre, and for winter $1\frac{1}{2}$ ton, of hay which is an acre more; thus $2\frac{1}{2}$ acres are necessary, which, at only 20s. rent, is 2l. 10s. to this we must add the dairy maids, implements of the dairy, : interest of money, expences of the team for carrying cheese out, &c. &c. and when these deductions are made, it will not be found that the farmer has a profit in the least adequate to the hazard and trouble. But the right comparison is, with what the farmers of other countries would make upon the same land by practising a different husbandry; it would be tedious to calculate this minutely; but I may safely assert, that where one of these men make a shilling, others would make ten, particularly by ploughing a part of the land for the winter support of those cattle which the grass feeds in summer.

The Earl of Shelburne, though his attention has not been particularly applied to husbandry, yet having kept large tracts of land in his own hands and with very liberal views, his Lordship has planned a system of conduct which cannot fail of having excellent effects upon the husbandry of his extensive estate, and the neighbourhood in general. But first to shew that he does not even talk

talk of farming without the requisite foundation of practice, I shall insert the particulars of his farm, premising that a park does not take up any part of it.

470 acres of grass,
 104 ——— arable,
 500 ——— plantations,
 1074 ——— in all,
 30 ——— oats,
 23 ——— wheat,
 20 ——— beans,
 6 ——— barley,
 8 ——— clover,
 15 ——— turnips,
 2 ——— carrots,
 51 horses in all, 17 for farm,
 15 cows,
 2 bulls,
 16 fatting oxen,
 6 working ditto,
 12 heifers,
 8 young cattle,
 840 sheep,
 23 pigs.

His first great object, which ought indeed to be the first with every man of great estate, is planting, this may be seen from the quantity of his woods ; great part of which have been planted by himself ; and he continues planting 150,000 trees every

every year : this is a conduct which cannot be praised too much : it is truly noble ; and the more so, as every acre, thus consecrated to posterity, yielded a rent of above 20s. an acre. All sorts of trees have been planted ; but those which thrive the best are beech ; oak, ash, and elm, do well, but for the height of growth, in those he has planted himself ; the spruce fir comes near the beech, and some exceed it. His principle is to plant very thick, in order for the trees to draw up each other while young, and then to be thinned out as they grow ; which is certainly the best method.

In the culture of his arable land, his plan is to adopt the Norfolk course of, 1. Turnips. 2. Barley. 3. Clover. 4. Wheat.

Sainfoine for the Downs was an improvement which his Lordship had ordered a considerable experiment to be made of ; not to discover whether it would succeed then, a fact he well knew, but to ascertain how far it would be advantageous to the landlord, the farmer, and the public, to change those immense heaths, from sheep-walks to cultivated fields.

But all these improvements are not so deserving attention as the liberal and enlarged principles upon which he attends to husbandry. It is his idea, that a man of large fortune keeping land in his hands with a view only of uniting the profits of the landlord and the farmer, is acting from very poor motives :

tives: That he ought to apply to farming either as a mere amusement, or which is better, as a means in which he can be of very great service to the country.

That in the first place he should have his grounds to exhibit to his tenants and others, cultivated in the most masterly manner which the climate and soil will admit of; that they may at all times see the culture of all those new plants which are recommended to farmers from the fields of gentlemen; that seeing the produce, the application, and the effect, they may, by degrees, be induced to make experiments themselves, and choose between objects, once equally unknown to them. That they may see the plants, to which they have always been accustomed, carried to the highest degree of perfection, by new successions of arrangement, new modes of culture and new exertions in manuring. From fields thus managed a farmer must always return wiser than he came.

In another line, who, says his Lordship, should introduce improvements in the breed of cattle and sheep, in the implements of husbandry; and in various other circumstances? the farmer, who, probably, sees little beyond what he has used and to whom a failure in success would be a heavy loss, or the landlord, who must necessarily have opportunities of seeing such variation and their effects,

fects, and to whom losses are an insignificant object?

To all who are fond of garden scenes, in the great stile of Brown's finest works, Bowood will afford considerable amusement. The water scenes form the finest features of the place. For one idea, the imitation of a vast river, Blenheim is superior, but as a lake, this has I think the advantage: The expanse of water is more varied: The accompaniment of hanging woods, varied groves, and cultivated slopes, far richer and more animated. Some scenes are truly Elysian and present, such an assemblage of the richest features of picturesque ground, that I know no place where they may be studied to more advantage.

Leave Bowood;—about Overton, between the Devizes and Marlborough, land lets from 10s. to 15s. an acre. Farms are generally large. The usual course is,

1. Turnips,
2. Wheat,
3. Barley,
4. Clover, hop-trefoile, rye-grass, &c.
5. Wheat upon three ploughings.

Turnips are all fed on the land by the flocks. They have two systems for turnips, one sown in May, which they eat off in time for wheat; these they hoe once. The other sown upon one ploughing, 4lb. to an acre, on the wheat stubbles for the spring feed

feed of their ewes : They do the same about Taunton in Somersetshire, and a very good way it is, the turnips yield more food than the weeds in stubble, and the land gets an autumnal ploughing. Wheat yields, from $2\frac{1}{2}$ to $3\frac{1}{2}$ qrs. Barley, 4 to $5\frac{1}{2}$. Oats, 5 to 6. This, however, is not an universal system, for they do not sow more turnips than they can fold ; in their turnip fallow, they destroy the couch by harrowing, then raking it in heaps and burning it : The farm-yard dung, called here pot-dung, is all laid on for wheat ; a great blunder, it ought all to go for turnips. They know very well the value of sainfoine, sowing many fields with it. It lasts 15 years, and yields two ton of hay per acre, worth 45s. a ton. Soot is the favourite manure for it ; lay 10 bushels an acre. For clover, they use peat, at 7d. a bushel, collected from houses. They also lay coal ashes, 20 bushels an acre, at 4d. but think they breed couch. This is a circumstance, which deserves attention : any manure being apt to bring weeds, is only a proof of its excellence, though usually condemned by the farmers, for that quality. Their soils are very dry ; now I have on many occasions remarked, that for wet land these ashes are useless, but yield a great effect on good dry loams.

The flocks in this country are large ; and all ewes for breeding, the profit being the lamb and wool ; they fold the year through ; but at lambing in the farm-yard.

In

In stocking farms, they reckon 2000l. necessary for one of 500l. a year.

Price of labour, 1s. a day till harvest, then 10s. a week, for six weeks.

Six or seven miles the other side of Marlborough the country is divided chiefly into large farms, from 500 to 2000 acres, the soil a dry stoney loam on chalk, lets from 10s. to 15s. an acre. Their course,

1. Turnips, or summer fallow,
2. Wheat, four quarters an acre,
3. Barley, four quarters,
4. Oats,
5. Clover and ray-grass, two years.

Many open fields about Newbury.

Pass that place : They have through all this country watered meadows, concerning which I made enquiries. They mow them but once, owing to spring feeding, but they get from two to three tons an acre, which sells, at 25s. a load, out of the field, and from 40s. to 50s. in the winter : They insisted on its being exceeding good hay.

The low grounds are full of peat ; the ashes are so valued, that many waggons come from the distance of 15 or 20 miles for them ; the price 4d. a bushel ; and 10s. a load of peat for burning : I cannot help condemning all the waggons I saw, which are of the same construction, through both Berkshire and Wiltshire, not more than 10 inches

deep, so that 40 bushels are the common load, for four good horses; this is a monstrous defect. The Suffolk waggons, 2 feet deep, 4 wide, and 12 long, the draft of which is also four horses, hold 100 bushels of ashes, nor are the horses overloaded: But all the farming tribe are apt to think the teams can do no more than the custom of the country allots: such is the using six horses in a plough. The loss of the carriage of 60 bushels of ashes in every journey is prodigious. The farmers lay these ashes on grass, sainfoin, clover; and sometimes on pease; 10 bushels are the quantity per acre; and they are found to do best on light dry soils; on stiff land, a larger quantity is laid; the benefit is greatest in a wet season. They find much wood in the peat; I saw the men cutting it, and the peat spade went with ease through much of it; the colour a light reddish brown. Through all the tract from Newbury to Reading, no plough moves with less than four horses; though the soil is not heavy; and I observed some with that strength, stirring not more than three inches deep.

At Henley, I was very glad to find that Mrs. Clarke had kept the lucerne, which the late Mr. Clarke sowed; and very much to the credit of this female cultivator, I found it without a weed and in admirable tilth. I may again remark, that this lucerne, which is cut five times in the season, grows in one of the finest soils I ever saw.

To

To Wycomb—about Fawley, land lets, at 20s. an acre. Turnips, sell not uncommonly, at 50s. an acre to feed off. Barley, yields 5 or 6 quarters. Clover, two tons of hay the first mowing, and 1½ the second. Wheat, 3 to 4 quarters. Cows are all suckled in, which they reckon 4s. a week, a good product of a calf. About Marlow, many beech woods. From Wycomb to Ammersham, the country is hilly, the soil a stoney loam on chalk, perfectly dry, and very fine land for sainfoin; yet, but few fields of it.

About Ammersham and to Rickmansworth, the soil consists of the same dry stoney loams. The course,

1. Turnips,
2. Barley,
3. Clover,
4. Wheat,
5. Pease or oats.

Half way between Wycomb and Ammersham, the beech woods end.

About Watford the land is very fine, lets at 20s. an acre; and the crops all good.

I viewed * Lord Clarendon's farm in this neighbourhood; whose hog husbandry I had heard much of. His lordship keeps not only a very large farm in his hands, but also a considerable water-mill; the bran and pollard arising from which, first suggested the propriety of going largely into hogs.

* In 1777.

His stock amounts to 144 in all. He has the Berkshire, &c. and the Chinese distinctions; of the former, 40 small, 6 larger, 2 boars, 12 fows. Of the Chinese, 12 fows, 2 boars, 60 pigs. The Berkshire he weans at 9 weeks; gives them barley-meal and water for a fortnight, and then turns them out to graze. The Chinese wean themselves at 2 or 3 months old. In winter wean none, but sell them from sucking. Begins to wean in March, and have none later than July. What is remarkable, the fows take the boar (especially the Chinese) at three weeks after pigging, yet pigs suck two months after that.

The litters of the large breed are 7 on an average, and 5 brought up after all hazards. Of the Chinese, the litter is 8 on an average.

The fows and pigs, and the weaned pigs, are fed on barley-meal and pollard, and the sweepings of the mill. They are kept till a year and half before fattening; then fed on barley-meal wetted, then pease dry; but their food changed to make them eat more: 16 or 17 weeks fattening.

In summer the fows, stores, &c. have nothing but ray grass and white clover grazing.

The winter food of stores, fows without pigs, &c. turnips or carrots, or potatoes, and some off corn.

Seventy fat hogs made in 4 months, 106 large loads of fine dung.

His

His lordship's poultry system is remarkable. He found that by keeping them constantly to a yard and its vicinity, the ground became tainted; they declined, and rarely did well. This induced him to change them about the park that they might have fresh ground, and the success shewed that the plan was good.

Sheep Lord Clarendon always folds in the farm yard, and straw to make dung; and finds every reason to be satisfied with the practice.

About St. Stephen's, half-way from St. Alban's to Watford, the soil is various; generally loams, and dry enough for turnips. Farms, usually, from 100l. to 200l. a year. Rent, 10s. an acre.

Courses are,

- | | |
|--------------------|-------------------|
| 1. Turnips, | 1. Turnips, |
| 2. Barley, | 2. Barley, |
| 3. Clover, 1 year, | 3. Clover, |
| 4. Wheat, | 4. Wheat, |
| | 5. Pease or oats. |

They generally dung for turnips, and feed them all off with fattening wethers, when fold, the price varies from 40s. to 4l. an acre. Barley yields from 4 to 8 quarters an acre: a farmer here has this year a 40-acred field 8 quarters through. Last year it yielded a very fine crop of turnips, being dunged, and fed on the land by sheep; after which 2 waggon loads of coal ashes per acre, were harrowed in with the barley seed.

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Clover

Clover they mow twice for hay, getting from $1\frac{1}{2}$ to 2 load an acre, and second crop as much. Of wheat they get on an average 25 bushels. Of pease 20. Very few cows are kept here. Their sheep system is to buy wethers half fat at Michaelmas, and sell them fat from turnips.

At St. Alban's got into a country I have described on another occasion; returned home to North Mims, near Hatfield.

RENTS.

	£.	s.	d.
All <i>Pembrokeshire</i> , one-third mountain, suppose at 1s. including vales, and two-thirds at 15s. the average may be called 20 miles, at - -	0	10	0
All <i>Carmarthenshire</i> , not one-third mountain, call it therefore at 3s. two-thirds at 12s. average 30 miles at - / - - - -	0	9	0
All <i>Brecknockshire</i> , one-third mountain, at 1s. the rest at 12s. average 30 miles, at - - -	0	8	4
The line across Monmouthshire, 20 miles, as no general minutes -	0	14	0
To Gloucester 28 miles, by the forest of Dean	0	5	0
To Burford, 28 miles - -	0	10	0
	Devizes		

		£.	s.	d.
Devizes to Reading, 56 miles; many watered meadows -	}	0	14	0
To Ammerham, 28 miles -		0	10	0
To Mims, 26 miles - -		0	12	0
		<hr/>		
266 miles average		0	10	6
		<hr/>		

A N N A L S
O F
A G R I C U L T U R E.

A FIVE DAYS TOUR TO WOODBRIDGE, &c.

By the Editor.

JULY 21, 1784. The Count de la Rochefaucauld, his brother, and Monf. Lowzofki, being desirous of seeing the objects most deserving attention in Suffolk, I was happy in an opportunity of attending them, to explain such parts of our husbandry as are the most instructive: and, as I never make the least journey without taking some notes, I trouble the reader of this work with my little journal.

To Sudbury. At Shimpling, the Reverend Mr. Fiske practices the bean culture as a preparation for wheat so successfully, that I wish he would publish an account of it. About Alpheton, the

soil is a heavy wet loam on clay marle ; but hollow draining understood, except which the husbandry is indifferent, and the crops neither fine nor clean. The soil changes much from Melford to Sudbury ; dry good turnep land, well managed, and the products very great. Rents 20 s. At Sudbury they have a considerable manufacture of *says*, which is at present flourishing, so that no workman is in want of work, which was not the case in the American war, and still less in the Spanish, which hurt them most of all. A weaver of *says* earns from 10 to 12 s. a week, if a good hand ; but many less. Wool-combers 14 and 16 s. The *says* are made in pieces of 27, 30, and 42 yards, one of 27 yards, at 2 s. a yard, will cost about 3d. a yard weaving. The same master-manufacturers here conduct the combing, spinning, and weaving branches. Others buy the spun wool to employ the weavers. They have also a silk manufactory here, established by the London mercers about 14 or 15 years ago, on account of the dearth of labour in Spittlefields : these men earn more than the *say* weavers, many 14, 15, and 16 s. a-week ; but they had much more in London, even to a guinea and 30 s. No baize made here. Calamancoes at Lavenham. Took the road to Colchester through a rich and well cultivated country. At Newton made enquiries ; farms are large, rising to 200 and 300 l. a year ; but many small ones ; rents on an average 14 or 15 s. an acre: The course, 1 turneps, 2 barley, 3 clover, 4 wheat, which

which is unexceptionable. The turneps are used for fattening both oxen and sheep, some of the former in stalls, and some on the land ; barley follows ploughed for thrice, but sometimes only once, when the season is unfavourable ; the product four quarters on an average, rising to five and even six. The clover is left only one year ; but if trefoil and ray-grass is mixed two and even three, in which case wheat is not sown but oats : this management is very bad ; for when a layer is left two or three years (especially the latter) pease should be dibbled if the land is dry, and beans if it be stiff, after which the wheat succeeds to great profit ; whereas in the method here pursued, oats are taken to much less advantage. Wheat yields three quarters on a medium.

Between this place and Stoke, I remarked very fine forward turneps ; much finer than any I had seen, the devastations of the fly having been very general about Bury. At Stoke, repeating my enquiries, I found that the course on the light land was the same as before, with the addition of sometimes taking a crop of pease or oats after the wheat, which is bad : some very weedy fields of oats confirmed this intelligence. On the heavy lands, of which there are large tracts, though not near the road, their course, 1 fallow, 2 barley, 3 clover, 4 wheat ; but the barley is sometimes so bulky as to destroy the grass, in which case they repeat barley again with clover. Rents about 15 s.

Much very fine country about Nayland, with some fine meadows, so level that they reproach the owners for not making use of the river for irrigation; these meadows do not probably let for more than 20 or 30 s. an acre; but watered with skill, they would be cheaper at 3 l. Leaving Nayland, as we rise on the hill, the view back on Stoke and that place is very pleasing.

Nothing could hurt me more, than to see a great range of common covered with fern (*pteris aquilina*) furze, (*culex europæus*) and other spontaneous growth sufficiently luxuriant to shew the goodness of the land; and yet, within two miles of Colchester, a very populous place, that, I question not, complains of the high price of provisions in sight of land thus miserably neglected.

At Colchester I made enquiries into the state of the baize manufactory, which is carried on in that town to a great extent. This fabric, like that of Sudbury, flourishes very much at present, so that all hands are fully employed, and the masters can scarcely get their work done; but the American war was a great injury to it, and the Spanish much more; so that many hands were then out of employment for months together. This declension was marked to me by the carriage of the manufactures to London, for at present four or five waggon loads go every week, whereas in the Spanish war none went: each waggon is calculated to carry 250 pieces, worth 5 l. each, or 1250 l. per waggon,

waggon, or about 5000 l. a week : I apprehend there must be some error in this account, as 250,000 l. a year is very inconsiderable for such a town as this.

The weavers earn 10 s. a week, besides finding employment for their wife and child at 4 s. a week more. They have several sorts of fabrics here, the chief of them are made mostly of short cloathing wool, of an inferior quality, mixed with some long-combing wool. They make baize two yards wide in this manner, which sell undyed at 3 s. a yard. Most, if not all their manufactures are for foreign consumption, especially for the Spanish American demand. A few for the Portuguese, but not in considerable quantity ; but at Coggeshall they are entirely in that branch.

Great numbers of combers are here, who earn more than the weavers ; the consequence of which is, that they will not work more than three or four days a week, and spend the rest at the alehouse.

The manufactory is exceedingly improved by means of a mechanical addition to the loom, which enables one weaver to do the business of two. In wide stuffs they formerly had two hands to a loom, now only one. The number of looms in the place guessed at 500. Many women weave and earn nearly as much as the men. Much lambs wool used. None of the manufacture ever goes to London by water.

To Miffley. Passed Lawford, where I had been more than once with the late very ingenious Mr.

Brand, of whose great mechanical abilities I made mention in the *Farmer's Tour*.

July 22, viewed the beautiful seat of Mr. Rigby, which always struck me as one of the most interesting places to be seen in England: it is not my purpose to dwell long on descriptions of this nature, but I cannot avoid touching slightly upon a few of the principal features of so fine a place. Those who have seen it will recollect the uncommon variety in the declivities which form the lawn. Not a level acre is to be seen; no hill without its accompaniment of wood; of groves that thicken into rich masses of shade; and of single spreading oaks that scatter their lighter tints over the chequered scene. Not a hillock without its delicious prospect of the Stour, which spreads in vast sheets of water as clear as crystal, with an opposite shore of a rich woodland country. The whole place knows but one defect; this noble river is governed by the tide, and consequently both loses and gains its beauty every day. When the vale presents its silver bosom to the eye, all is chearfulness and brilliancy; but when the marsh that was of late so pleasingly concealed, is exposed to view, then the whole scenery wants its warmest tints. An ornamented ground of a mile and a quarter skirts the southern boundary of the park, laid out with considerable taste, in which are to be found, some trees and shrubs, of the scarcest sorts, of a very fine growth. One of the walks of this ground leads to a noble kitchen-garden of nine acres, five within

within the walls in three divisions, and four without ; where all the circumstances of horticultural luxury abound in profusion. The house is charmingly situated, and the principal apartment very elegantly furnished.

These, however, are bagatelles compared with something which I wish every traveller not only to view, but also to admire. It is indeed worthy of admiration ! A new town, of above 40 good brick houses, several large and handsome :—an elegant church, built by Mr. Adams—an excellent inn—an extensive quay, faced with brick and stone, upon the harbour, terminated at one end by a large warehouse, with a wet dock by it capable of holding two or three ships ; and, at the other end, by a ship-carpenter's yard, with a 32 gun frigate and some smaller vessels building, with all the hurry and bustle of active industry, and successful commerce—these are objects that rank in a class abundantly superior to brilliant palaces, and gew gaw gardens. And when the overflowings of a princely fortune are thus expended, never shall I regret that the service of the public was the source of the wealth thus admirably applied. Mistleley will amply recompence the traveller for no inconsiderable journey in the pleasure of viewing it.

To Harwich, through a country beautifully variegated, accompanied by the Stour on the left, which renders every scene delicious. The husbandry good, but not equal to some we had viewed ; the crops generally great. At that town they are

in the fishery to supply the London market with live cod, which are taken in the North sea on the Dogger Bank. I saw one smack of 70 tons building for this fishery, in a manner remarkably strong, several having been lost. They are all well-boats; this will cost 1000 l. ready for the sea. There are above 30 belong to this town; the only branch of trade they possess; depending on this and the packet-boats that sail to and from Holland.

Greatly disappointed at the wind being so high that it was impossible to go by water to Ipswich, which was our intention, and to view Woolverston in the way; but we could neither do this, nor even cross to see Landguard-fort. Returned to Mistley in the way to Ipswich by land.

July 23, crossed Sampford hundred to Woolverston; I had a great inclination to be informed of the management in this part of the county, not having seen it before. Was so fortunate as to meet with Mr. Palmer, of Branton, who was so obliging as to answer my enquiries, which he was particularly able to do, being one of the best cultivators in the country. The management is exceedingly masterly; the soil dry and sandy, all arable, except here and there a meadow in a bottom, and so few of them that some farmers have not a single acre, but their cultivation makes amends for the deficiency. Their course is, 1 turneps, 2 barley, 3 clover, 4 wheat. I was pleased with

with finding that all the dung they can raise is spread on their turnep land, in which respect some of the best farmers in Norfolk and Suffolk are in a great error in giving it to the wheat. They know so well the importance of this application of manure, that they buy large quantities at Maningtree from London, which cost 12 s. a five-horse load at the quay, and 20 s. by the time it is on the land. Each load three tons. Kentish chalk also is purchased at the same place, at 7 s. a load, with which they form composts. They feed the turneps on the land with bullocks and sheep. Plough three or four times for barley; generally three clean earths and a *rove* (half ploughing) and get of that grain four quarters on an average; the clover supports all the stock of the farm, and when it fails they are distressed; but make up as well as they can, by keeping the last year's unploughed.

Sometimes on their poorer soils they sow trefoil and ray-grass, in which case the course is, 1 turneps, 2 barley, 3 trefoil, 4 pease dibbled, 5 barley; which is most admirable management, and calculated to keep the land always clean.

Wheat yields, on a medium, $2\frac{1}{2}$ qrs. an acre. They are much troubled with smutty wheat; have also a great deal burnt; and in some years much mildew; they attribute the latter entirely to honeydews, but burnt wheat to blights, in which they are certainly mistaken.

Farms are not very large, nor small, from 200 to 300 acres; and they reckon the sum necessary to stock 5 l. an acre.

Viewed Woolverston, the very elegant seat of Mr. Berners. The spot on which the house is situated, is very happily chosen for commanding, from the upper stories, the views of the magnificent scenery of the Orwell. The wood is old and very fine, and unites from its thickness into masses of deep shade, that fringe the lawn, and make the finest shore imaginable, especially as the venerable oaks grow chiefly on the declivity, so that their umbrageous heads form the immediate separation of the water, which opens to the eye, every where broken by groups of trees, and intermingling with the woody shores in the happiest stile. A circumstance that distinguishes this water scene from Mr. Rigby's, and gives it a superiority, is the union (to the eye) between these home-woods, and those on the opposite bold shore of Lord Shipbrook and Mr. Brook, so that a river, half a mile wide, appears in a great variety of different positions, now embosomed and lost as it were in woods; and then opening in extensive reaches that fill the eye, and even answer to the fancy's expectation. For the views that appear from the house, Woolverston is superior; but in the variety and inequality of the grounds, Mistle much exceeds, as well as in the pleasing accompaniment of ornamented walks.

To

To Ipswich, where I caught a hasty walk with Mr. Turner over a part of his farm. I had the pleasure of finding from him, that he fed his farm-horses last winter with carrots, giving them no corn whatever; and they were in as good health, and did their work as well, as when supported on corn alone. He has a crop this year for the same use. And tried an experiment which seems to answer much better than I should have conceived it would, that of sowing carrots among drilled beans. Both crops were good. Mr. Turner's potatoes were fine, and of a garden degree of cleanness. Part the red-nosed kidney, and part the Aylesbury white, the former all curled, the latter healthy and flourishing. Nothing in the culture of potatoes is of more consequence, than to discover sorts not subject to that destructive distemper. I saw a large field of this gentleman's barley, half after cabbages, the other half turneps, and equally manured; the comparison, I hoped, would decide which was the most exhausting plant; but unluckily the cabbages were drawn, and the turneps fed on the land. No wonder, therefore, the barley was much finer after the latter. It is full a quarter an acre better.

I was sorry to hear, from Mr. Turner, that there was a sharp morning frost about a fortnight ago, that made the meadows quite white, and which had damaged his lucerne. Quere the mildew this year? Some has already been observed about Ipswich. This was bad news.

Mr.

Mr. Turner's lucerne is in two feet rows, on a poor sandy gravel, very apt to burn, yet it yields in the third year to the value of five guineas an acre in feeding cows, which give milk that yields remarkably thick cream, and excellent butter. The cows are soiled, and the pigs I saw, which had nothing else, were in very fine order.

I could not help again admiring the charming prospects commanded by some of Mr. Turner's fields, and from the lane that leads through them, on one side, the river Orwell appears like a noble bason two or three miles across, and surrounded on every side with such spreading woods, that the scene is magnificent: in front, a narrow strait or gut opens to let in the view of wood yet more distant: the effect different from any we have yet had. On the other side of the farm, the river winds through a spreading vale, in a much humbler stream, but enough to throw a cheerfulness over a great extent of cultivated country, spotted with villages, farms, &c. on one side, a region of inclosures thinly scattered with wood; and on the other, a large mass of shade. The view of Ipswich, and its environs, is every where very fine.

To Woodbridge by Playford, &c. (not the high road, which is much inferior in pleasantness.) Passed a finely cultivated country, abounding uncommonly with turneps, the preparation for which seemed to be very complete. A vale and landskip

to

to the left as beautiful as I remember any where to have seen. There is no water ; but all the parts that compose the view are happily proportioned : the lighter tints of corn and scattered trees, with the verdure of new-mown meadows : the darker shades of wood, where the groves unite for the contrast, but not enough to affect the character of the scene, which is cheerfulness † the churches rising where the happiest taste would place them : the villages, farms, and cottages, in exact unison with the scene : the slope of the country bold enough to be interesting, without any abruptness to give sublimity where beauty alone should prevail ; altogether unite into a perfect harmony of disposition, calculated to promote the impression which this charming landskip must raise in the mind of every spectator that can admire a scene where art has done nothing.

Passed Kesgrave, the farm of — Kirby, Esq. of Ipswich, one of the most considerable gentlemen farmers in all this farming neighbourhood ; for, besides a farm of his own within two miles of the town, he hires another of 750 acres, of General Phillipson, at that place. It is a contiguous well situated tract of poor sand, except about 90 acres of very good loam. I found Mr. Kirby's clay carts hard at work, claying an old sheep-walk in order to break it up. He lays 80 loads an acre, of about 36 to 40 bushels each, and the pit at such a distance

tance that he can carry but eight loads a day, the expence, therefore, is heavy. It is a clay marle; left a year on the walk before breaking up, and then ploughed for pease, which is excellent husbandry. On the poor parts of the farm his course of crops is, 1 turneps; 2 white oats, but if the turneps are left late in the spring, then buck-wheat sown the first week in june; 3 ray-grass, one bushel per acre, and if the land is not of the worst sort one-fourth peck of clover; feeds it the first year, and leaves it two, three, or four. Upon this lay clay for 4 pease, 5 rye, on one earth. But upon the good loam, his course is the common and excellent one of 1 turneps, 2 barley, 3 clover, 4 wheat. He finds, upon the poorest sands, that he can get white oats where barley would fail.

His common crop of ray-grass seed is $1\frac{1}{2}$ qr. an acre, worth 30s. a qr. This yields a considerable sum; but I have no doubt but Mr. Kirby will, in the long run, find it disadvantageous. It is in all respects of exhaustion, a crop of corn, and must not only draw the land for the year it is taken, but lessen the value of the two or three following crops of sheep food, at the same time that the flock must be smaller (than it would be if no seed was saved. I speak, however, from theory, submitting it always to actual practice.

In the sowing of all these crops, Mr. Kirby finds, that the poorer the soil is, the more seed he must sow of every kind; a fact he has ample opportunity

portunity of ascertaining, having some very good land, and much exceedingly bad.

As many farmers in Norfolk object to ploughing deep, on account of the subsidence of the clay forming a pan beneath the tilled surface, I enquired of Mr. Kirby what observations he had made on this curious point. He made a distinction between a brick earth loam being carried on to the soil, and a true marle; with the latter, which he conceives to *improve* the soil by thoroughly incorporating with it, he does not regard how deep the plough goes; but with a dead brick earth, carried on for the mere mechanical operation of its tenacity, the case is different; it forms a pan which he would not break by deep ploughing. I have taken other occasions to observe, that this whole system of shallow ploughing, on account of the pan, is very questionable, because it will be formed at the bottom of the path of the plough let it be as deep as it will, and the dryer the soil is, the deeper I would wish it to be, as there will be moisture within the reach of the roots in the dryest seasons; but when the pan is within four or five inches of the surface, the power of the sun will have too great an effect, and exhale all the moisture, because it is retained too near the surface.

There are many *crag* (shell-marle) pits about the farm; Mr. Kirby has made good use of them, and has even found, that the benefit of it for turneps on a poor sand, has been equal to that of dung: yet the greatest effect is on a moory bottom

a vale

a vale that leads through the farm (every acre of which, by the way, might be converted into watered meadow) which he has begun improving; on this the crag does wonders.

The weeds which he finds most difficult to destroy, are the spear grass (*tritium repens*) and fern (*pteris aquilina*). He has tried trench-ploughing by two ploughs going in the same furrow; and has found it effectual for fern, and in some cases for spear-grass. Clay laid on the lay one year before breaking up also destroys fern.

There is a sheep-walk bottom of black sand very poor, the spontaneous growth of which is ling (*erica vulgaris*) and whins (*ulex europæus*) of about 90 acres, most of which Mr. Kirby designs to leave, because he is very credibly informed by men who have experienced it, that when all the ling of a farm is ploughed up and improved, and the flock has nothing but ray-grass lays for feeding on, the lambs become ricketty, especially in the joints of the back: and it is asserted, that this does not arise from the husbandry introduced, but merely from the loss of the ling. Observations of this sort are commonly made with so little attention to all the concomitant circumstances, that not much faith is to be put in them. If the fact was general, what would have become of the sheep on many improved tracts, with which I am very well acquainted, where no ling is now to be seen? What does become of them on other-tracts where there never was any ling? It must be ascertained far better than it
is

it is at present, to bring any respect to a vile plant (if I may be permitted the expression) that occupies in this kingdom millions of acres that ought to be under good corn and grafs.

Particulars of this farm. Acres 750, corn 250, turneps 100, sheep 400, horses 18, cows 12, oxen, &c. 30, rent 240 l. 1 bailiff, 1 maid, 1 boy, 5 men, 8 labourers.

Carrots Mr. Kirby has cultivated for some years; never less than four acres, and generally more. His culture is to sow them broadcast after clean barley or turneps, in order to lessen the difficulty and expence of hoeing. He has tried them in drills 14 inches asunder, but they would not do, and is clear they cannot be cultivated to advantage that way. He approves much of the crop by way of improving land, provided it is clean; but if foul, cannot be cleaned from spear-grass while under carrots. He is decidedly of opinion, that they are not an exhausting crop; for, supposing them to be sown on one part of a field, and turneps on the other, neither part dunged, the turneps fed on the land, and the carrots carried off, as good barley will succeed the carrots as the turneps. But when he sows them after turneps, and then barley, he gets 2 comb an acre more barley, than would be yielded if that crop was to follow turneps without the carrots intervening. All which is, upon the whole, very much in favour of the culture. The expence and produce as follow, on poor sand of 5 s. an acre.

One ploughing deep,	-	£.	0	7	0
Seed and sowing,	-		0	4	6
Hoeing,	-		1	1	0
Taking up, 1 s. a load of 40 bushels					
topped, that is on 200	-		0	5	0
Carting home,	-		0	5	0
Rent, tithe and rates,	-		0	7	0
			<hr/>		
			2	9	6
			<hr/>		

Produce.

200 Bushels per acre; but the value used at home not ascertained. The prime cost at the above expence is just 3 d. a bushel.

Of all other applications, the most advantageous is that of fattening bullocks, in which he thinks them very profitable; has given them to his flock, and the ewes gave much milk; but the hardness of the root made them crones too soon, by breaking their mouths, on which account he left off that use of them. He kept 18 horses a whole winter on carrots, with the common allowance of chaff and corn, substituting the carrots for hay. That winter they eat only 12 tons of hay, whereas in other winters they eat 40 tons, the saving was therefore 28 tons, or above $1\frac{1}{2}$ per horse. The allowance of oats was two bushels per horse per week. They were constantly worked, and *never were in so good order.*

Cabbages he has also cultivated; to shew the value of the plant, he sold a field last year to a neighbour,

neighbour, who bought them to feed his cows, at the price of 8 l. per acre, which I think is saying much in praise of cabbages *.

Examined Mr. Wood's nursery at Woodbridge, which I mention for a remarkable experiment I saw on crag. The soil is a light springy bog; he is in the habit of covering it four or five inches with crag. A bed of french beans was sown the same day, but a part of it not cragged. The prodigious superiority of the former is sufficient to convince any one of the immense benefit of this admirable manure.

July 24th. The principal object of this little tour was now at hand, the husbandry of the *Sandlings*, as they are termed, that is the triangle of country formed by the three points of Woodbridge, Bawdsey Cliff, and Orford. I had, of late years, been exceedingly solicitous to gain a thorough knowledge of the culture of carrots, the great importance of which, I had first learned many years ago in this country; in my various tours through different parts of the kingdom, I had collected much information concerning them; but unfortunately opinions were so various as to the value of the crop, that the question remained quite undecided. About Woodbridge, they have always been in the habit of selling the greatest part of their

I 2

crops

* The above minute of Mr. Kirby's husbandry taken in January 1782.

crops for the London markets, from which it has been conjectured, that the profit of the culture resulted not from the use of them in feeding their horses, but from the sale alone. Another point in dispute also arose concerning even that application : it has been contended, and particularly by several gentlemen in my own neighbourhood, that the utility is only when used in small quantities for the health, but not for the entire support of a team. These points are all of considerable importance ; for it is in vain to recommend a great extension of the culture, if we cannot ascertain beyond a shadow of doubt the value of the crop when it is produced. In conversation on the subject, I had often quoted the practice of the *Sandling* farmers, but had of late been more than once assured that I had mistaken the matter ; for those farmers, so far from trusting to carrots as an entire substitute for corn, were in the constant practice of giving oats at the same time. In all such disquisitions I never, in one moment of my life, had any other object than that of ascertaining the truth ; and, therefore, my only regret was, that of having viewed the country without sufficient attention : the moment was now come when I could repair that error, and, by a more minute examination, satisfy myself on a point so interesting to the national agriculture.

The first place we came to was Sutton, on the farm of Mr. Gerrard, where we received the following information : that they ploughed for them
but

but once, which was a double furrow as deep as possible; but Mr. Gerrard put them in on one very deep furrow, the plough drawn by three stout horses. They sow 5 lb. of seed per acre about Lady-day. Begin to hoe at Whitsuntide; three hoeings, in all at from 15 to 18 s. an acre. Ten loads (each 40 bushels topped clean) an acre upon good land, a middling crop; but upon walk land (poor sheep-walks ploughed up) less. I was assured by the workmen that hoed them, that Mr. Gerrard had once 20 loads an acre; a produce so great, that I wished to enquire after it of Mr. Gerrard himself; but the men told me he was not at home. I viewed his field this year of ten acres, which the hoers guessed at six or seven load, they appeared to the eye to be about half a full crop. Last year, Mr. Gerrard had 17 acres which produced nine loads an acre; he sold 100 loads clean roots to London, consequently he had 53 of refuse; that is two thirds saleable; the standing price 11. 1s. a load. Respecting the use for horses—they are sold not uncommonly for that use at 15 s. a load. In feeding, they give two loads a week to six horses, with plenty of chaff, without any corn; and that thus fed they will eat very little hay. That the horses are never in such condition as on carrots, and will, upon such food, go thro' all the work of the season, being the best that can be given to a cart-horse; but will not do for horses that are rode fast. They begin to feed with them before christmas, and they continue it sometimes

till whitsuntide, those used in the latter part of the season being taken up and housed, to have the land clear for barley sowing. After carrots they sow either pease or barley, both do well. The ten aced piece I saw, was a blowing sand, which they said would produce probably about two quarters an acre of barley; the course being 1 carrots, 2 barley, 3 trefoil and ray-grass, two or three years, 4 pease dibbled in with a frame, 5 rye. Another course, 1 turneps, 2 barley, 3 rye or pease. Mr. William Waller, of Sutton, one of the greatest farmers in the neighbourhood, has 2700 acres, ploughs 1000, and has above 1000 sheep.

Advanced next to Shottisham, where I viewed Mrs. Curtis's field of carrots of eight acres, very fine. Sown five pounds an acre on a double furrow; hoed thrice at 18s. The product guessed at six or seven load; the average ten (each 40 bushels). More than half the crop is saleable. Last year many rotted in the-ground; for their practice is to take them up as wanted, except having a store for their own use beforehand in case of frost. In feeding they give six horses a load a week, and a comb of corn, this in the forepart of the winter, when they do not reckon them so good as they are in the spring, then two loads a week and no corn; fed only on corn, even with a great allowance, they would not be in near such order; if oats and carrots given at the same time, they leave the oats and eat the carrots. Till lady-day they have
 straw,

straw, after that hay, but eat very little of it, if they have a proper quantity of chaff with the carrots. They could be supported on chaff and carrots only, without either corn or hay, and would be as fat as moles. The expression used was, "That the country could not be supported without them, for they had not hay for such a number of horses, if corn was the food as in other countries." This is not the only application, Mr. Linn fattened his bullocks last winter on them late in the spring to great profit. Others have tried it, and found that they do exceedingly well on them. Respecting the effect of the culture as a preparation for corn: they get very clean and good barley after them; but carrots must not be sown in land that is very foul. They chuse a clean barley stubble; if the land is very full of weeds they are too difficult to hoe. Other parts of their management here described were, the course, 1 turneps, fed on the land by sheep and bullocks; 2 barley, two and a half or three quarters on walk land, five quarters on the best; 3 clover, trefoil, and ray-grass, two or three years; 4 pease, dibbled in by a frame, ten holes at a time, at 5 s. an acre; produce two and a half or three quarters; 5 wheat on good land; or rye or barley. They sometimes sow clover, trefoil, and ray-grass, at michaelmas with rye; but it succeeds better in the spring, because only one ploughing is given for the rye. This grain is sown also on barley stubbles, which is very bad management on poor lands;

they sow one bushel and gain ten on their *walk-lands*. Beans are cultivated on the lower and rich soils, though sand; hoe them twice carefully and sow wheat after, which succeeds well. Flocks not large, but fold the whole year.

Price of labour.

In winter 1 s. 2 d. a-day, and beer.

In spring 1 s. 6 d. and ditto.

Harvest all taken by the acre, but earn one guinea a week for five weeks.

Reaping wheat 5 s.

Ditto rye 2 s. 6 d.

Ditto beans 5 s.

Mowing barley and oats 1 s.

Ditto pease 2 s. 6 d.

Ditto grass 1 s. 8 d.

Proceeded to Ramsholt, where, on repeating our enquiries concerning carrots, we found that they sow five pounds of seed at 1 s. a pound upon a double furrow 14 inches deep, worth 7 s. an acre, hoe thrice at 15 s. to 21 s. an acre. Take up at 14 d. to 16 d. a load, topping included. Mr. Weeden, on 18 acres last year, had eight loads an acre nett for London, and two loads an acre for himself; which crop is an average one. I viewed his field this year, it is 19 acres, a regular and fine crop, without a weed to be seen. Barley is always sown after them, and is as good as that after turneps though fed off, which they attribute

to the depth of tillage bringing up old manure to the surface. In regard to the use in feeding horses, Mr. Weeden had his on carrots all last winter, and gave them no oats, yet they never did better: five horses are allowed one and a half load (always 40 bushels to the load) a-week, they begin to feed after christmas, and continue till the end of april; plenty of chaff is given, and the horses do not eat above half the hay they would do if they had no carrots. Mr. Weeden assured me, that if he was obliged to buy his horse-provender, he would purchase refuse carrots at 15 s. a load, rather than oats, unless the latter were so low as 7 s. a comb, then part carrots and part oats. Mr. Bennington, at the dock, would rather buy carrots at 15 s. a load, than oats at 10 s. a comb; and carrots at 12 s. rather than oats at 7 s. Has found them also of admirable use for hogs.

In regard to other branches of husbandry, their course is, 1 turneps, 2 barley, 3 clover and ray-grass one or two years, but the latter fills the land with spear-grass (*triticum repens*.) 4 pease or wheat.

When lands are much run to spear-grass, they are exceedingly attentive to cleaning, even to harrowing 30 or 40 times. Mr. Weeden shewed me a field he harrowed 36 times; and Mr. Mapson, who is in the farm that was Mr. Waller's, gave 40 harrowings to another, to get out that pernicious weed. In manuring, they bring sea ouze from the marshes, and mix it with crag for
their

their uplands. I should observe, that all this country seems to be upon a foundation of red shell marle, here called *crag*, pits are seen on every farm, some very large and deep, from which immense quantities have been taken for the original improvement of the district when it was first broken up from its waste state. Nor do I suppose a nobler improvement is any where to be seen, than the conversion of this great extent of country from heaths of 4 d. 6 d. 1 s. and 1 s. 6 d. an acre, to admirably cultivated fields, covered with fine crops of turneps, corn, and carrots, and let at 5 s. 10 s. and 15 s. an acre. The use of *crag* is, however, dropped, except for taking in new *walk*-land; on old improved fields they never lay it on alone, but mix it either with dung, earth, or *ouzo*, thinking that it makes the light sands *blow* more. Over the river at Felixtow is more *crag*-land, and the finest soil in the county; lets much at 25 s. an acre.

The breed of horses in all this country is one of the distinguishing peculiarities of it, they are all of a sorrel colour, short legs, great carcases, large ill-made heads, slouching ugly ears, and low fore-hands; worse points for a coach or saddle-horse could hardly be named; but for the *true* cart breed these are essential. I am sorry to remark, that they have, for some years, been changing their breed: I was here in 1764, and in 1776, to buy horses for my own farm; again in 1779 to buy for my friend Mr. Samborski, and I think, upon the whole, that they had incomparably more true-bred horses 20 years

years ago, than they have at present ; prided themselves more upon their teams ; had a greater spirit and emulation in this point, of which the custom of drawing team against team, *the best of twenty pull*, was a proof. They trained their horses to the draught attentively, to make them draw in concert at the word of command ; and that team that obeyed the best and ofteneft in twenty exertions, drawing in a waggon loaded with sand, the wheels sunk and obstructed, gained the prize, usually a silver cup. I leave it to people of reflection, to consider whether there would not be more good sense in giving royal rewards to the victors in such *matches* as these, which encourage a race of horses useful in a superior degree, rather than for running races with a breed that is good for nothing else ; and which has no other tendency than to vitiate, weaken, and destroy the strong race that would serve well for the cavalry, for the coach, and for the road. The worst circumstance to be found in the Suffolk breed at present, is the change they are bringing on in the shape of the horse ; they aim a great deal too much at breeding for a handsome forehead, head, and ears ; and a lighter carcase, for using in coaches and chaises as well as in carts. It is true they succeed well, for no coach-horse is to be found that will go through more labour than a *Suffolk Punch*, if he is not driven more than six miles an hour ; or seven if of a very light form : but improvements in objects of luxury are contemptible, on comparison with
those

those which take place in the farmer's walk, of a strong, powerful, and hardy race. This is the only country in England in which I wish the use of oxen may not be introduced, because it is a national object to have so fine a breed of cart-horses perpetuated. But it is greatly to be hoped, that some sensible intelligent farmer, whose business is on a large scale, may give his attention to preserving the true original breed uncontaminated by any modern improvements.

One horse of this breed belonging to Mr. Weeden, and which we saw, drew 25 comb of wheat in a waggon up hill for more than 12 rod; but he offered to make a bett with Mr. Lowzofski, that he would draw 30 comb on the same ground: what would not a team of these horses draw in one-horse carts with iron axles and five-foot wheels! five or six quarters of wheat would be a common load.

Proceeded next to Alderton, where we found that Mr. Abblet had eight acres of carrots, but last year 20 *. He thought that six horses should not have more than one load a-week, one bushel
per

* Mr. Moor, who occupied this farm before Mr. Abblet, had, in 1779, no less than 36 acres. I shall take this opportunity to remark, that the idea which I found at Alderton, of my having published that Mr. Moor informed me he had 20 loads of carrots an acre, is a mistake, as I do not recollect mentioning, in any work till the present, either his crops or his name.

per horse a-day a proper allowance : but they keep the horses so fed in such health, that he thinks the saving of hay is not considerable. The food he should prefer would be both oats and carrots, one peck of oats to a bushel of roots. If he was forced to buy horse food, he would prefer carrots at 15 s. to oats at 10 s. Culture and produce as before described.

Called next on Mr. Wimper, a gentleman farmer of the same place, very sensible and intelligent, who obligingly informed us, that he generally gives oats to his horses as well as carrots ; not because they would not do upon the roots and chaff, but because he has usually a greater stock of horses, &c. than breadth of carrots, and therefore he limits the use of them. If forced to buy his horse-food, he would prefer refuse carrots at 12 s. to oats at 9 s. Fortunately I put to this gentleman a question which I had before omitted, Would you cultivate carrots if there was no sale for them ? To which he replied, That he would undoubtedly have a few ; as many as his consumption demanded ; not only for his horses, but for his weanling calves, to whom he gave as many as they would eat ; and also for pigs, and sows with pigs, in which application they are particularly useful. That calves must thrive greatly on them, I have not a doubt, for I saw many young cattle, oxen, and fat beasts, of Mr. Wimper's breed, which were in every respect very noble beasts, and proved, from their age, how well they must have been

been fed when young. Respecting the produce, the average on land of 10 s. an acre, &c. is about nine or ten loads ; and four or five on *walk-land*. The total expence of an acre about 3 l. 3 s. : if nine loads the crop, the prime cost is 7 s. a load. Sometimes has seen as good barley after them, as after turneps fed, but it is not common.

From hence to Hollesley, where repeated our enquiries : they chuse the best land they have, which is the red soil, double furrow it 14 inches deep, sow five or six pounds of seed at lady-day, the price from 9 d. to 18 d. ; hoe thrice at from 18 s. to 21 s. but if the land is very clean 16 s. The common price of taking up 1 s. a load ; sometimes up to 1 s. 4d. topping included, it is done with spades. On good land average produce 10 or 12 loads : but on heath not more than five or six. Three-fourths of the crop nett roots for sale. As good barley after them as after fed turneps, but not always : generally good. In the application of the crop not sold, they give them to horses with plenty of chaff, but in general no corn while on carrots ; nor will they eat so much hay as if they were fed on oats : calculate the saving at more than a fourth. Some farmers give as many carrots as they will eat ; but in general about two bushels each horse a-day. The selling price 12 s. to 14 s. a load for the refuse roots.

Before I quit this country, I may remark, that I was much struck all through it, to find the Lombardy poplar so generally introduced ;
there

there is scarcely a house without some, and many of them very finely grown. But the cause to which this and other circumstances may be referred, is an article that escaped me when I was here before. It is, there being a great number of landlords the occupiers of their own lands. Alderton especially, is full of them; gentlemen farmers from 200 to 500 l. a-year, who cultivating their own property, do it with a spirit that very few *leases* will permit. Within a very few years there are a great number of well-built brick houses, with inclosed and well-managed gardens; many new cottages; much planting; which, added to the excellent husbandry in the fields, give a beautiful appearance to the country, and prove, beyond a million of arguments, the admirable effects which flow from a wealthy yeomanry; a race of men so greatly decreased in this kingdom; and is a strong confirmation of what I have more than once remarked, that it is not the union of little farms we should complain of, but the accumulation of little estates, which, when they happen to be cultivated by their owners, promote, beyond any thing else, the prosperity of the national agriculture.

All this country abounds greatly in game, especially pheasants, which are so plentiful, that every little copse is full of them. At Boyton Mr. Woolnough, when I was here before, had them in his garden, and in severe weather they come to the corn stacks: besides a general plenty of game
the

country about ds greatly with the best sorts of fresh water fish ; there is not a pond, or scarcely a large dyke at Alderton, Hollesley, Shottisham, or Bawdsey, that has not good carp and tench ; carp rise to eight pound each, tench four pound, perch two pounds ; and there are several fresh water creeks that communicate with the sea, in which they abound of the largest size ; when to this we add wild fowl in plenty, a dry sandy but fertile soil, and the sea contiguous almost to every parish, it will not be doubted that few parts of the kingdom possess so many circumstances to make a residence in every respect plentiful, and in most agreeable. I know but one drawback ; in the spots near the marshes they are plagued with agues, but the high sandy situations are free from them. Those marshes are narrow tracts on the river.

Next we went to Capel St. Andrews. Mr. Gros's great farm of 2700 acres, of whom, repeating our enquiries, we found, that he had been accustomed to cultivate carrots, even to last year, but his crops were so eaten up by the innumerable number of hares which his landlord, Lord Archibald Hamilton, preserved, that he has determined to sow no more. In these cases the tenant doubtless has his recompense in the rent, but the public has none. The profusion of game in this and another of his lordship's farms, Butley Abbey, Mr. Chandler's, which are together above 5000 acres, puts a barrier to good husbandry, and prevents one of the best articles of culture in the kingdom from spreading.

spreading. It is not only the hares that do the mischief, but their preservation nurses up a breed of rabbits which add to the evil. The reflection I have added is my own, and not the farmer's, who seemed very well inclined to second his landlord's wishes.

When Mr. Gros did use carrots, he gave his horses each one bushel a-day with chaff, but no oats; and assured me, that he had much rather feed on carrots than on oats; also that they save more than half the hay; he has known his horses, after feeding on this root, refuse their hay entirely. On other points of husbandry—the course on poor walk-lands, 1 turneps, 2 barley, 3 trefoil and ray-grass for four years, 4 rye or pease, 5, if the preceding year pease, rye. On good land, 1 turneps, 2 barley, 3 clover, 4 beans, 5 wheat, than which there can hardly be devised a better rotation.

I shall here add a minute I took in 1779, when I viewed the country on the coast.—At Orford I was so fortunate as to be introduced to Mr. Wade, a very sensible, intelligent, gentleman farmer, who had an opportunity, last year, of making a curious observation on the effect of the sea breaking over his marsh land. He had a crop of wheat which was under the salt water 24 hours, and entirely killed; in the spring he sowed it with oats, but they did not come up; the first week in June with buck-wheat, which did not sprout; he then sowed rape, which vegetated and

is like to be a crop : this experience may be of use to others in the same situation. I walked into his crop of Windsor beans, and had the pleasure to find them in a degree of garden cleanness.

He remarked to me, that there is no greater improvement here, than ploughing marsh-land grafs in order to lay down again, which I can believe, provided very few crops are taken ; the course good, and the grafs seeds of the right sort.

The culture of carrots was, some years ago, more common about Orford than at present, supposed to be owing to the great improvements in the sands near the Woodbridge river, which have rivalled them in the supply of the London market.

Viewed the remains of the castle, which appears to be built of sea ouze petrified ; there is a piece of timber sticking out of the wall, very high in it, and exposed to all weathers for some centuries ; I would have given something to have examined it, but the situation is quite inaccessible. In the church is a handsome organ, the gift of the Earl of Hartford in 1772. Antiquarians reckon the remains of the chancel very curious, indicating a great antiquity ; the pillars are most of them wrought in different forms, some spirally twisted, and others in fanciful compartments.

Mr. Jackson, the rector, was so obliging as to favour me with a sight of the parish register, which I was desirous to examine, in order to see if population had declined here, with the undoubted declension

clention of the commerce and navigation of the place since 1538, no such circumstance is apparent.

Left Orford. Towards Snape, the country for two or three miles is a sand, after which, three miles over that narrow tract of poor sand covered with heath, which extends almost to Loeftoff. It is, however, highly improveable; there is much fern, (*petris aquilina*) nettles (*urtica*) &c. as well as heath (*erica vulgaris*) which prove the soil not to class with the pure barren sands; and on the edge of it, I observed a pit of clay marle, so that there are stores of manure under the surface wherewith to improve it. Leaving Snape, entered a fine rich tract of sandy loam, at 20 s. an acre. About Leiston are many carrots: few farmers of any consideration but have 10 or 12 acres every year; they have, however, a bad custom of continuing them on the same field for four or five years. The carrot culture improves the soil so much, that two years are the most they should be continued, by which means the larger tract receive the benefit, I have no doubt, from the situation of their consuming all themselves.

Farms here are very large, up to 300, 400, and 500 l. a-year. The common course of crops is, 1 turneps, 2 barley, 3 clover, 4 wheat; and they cannot have a better for husbandry that is carried on upon a large scale.

Cabbages in the field for cattle have been cultivated by several farmers for more than 20 years,

it declined eight or ten years ago, but of late has increased again ; they have up to 10 and 15 acres a man. Plant them in rows from two to three feet asunder, and hand-hoe enough to keep them clean ; they give them to all sorts of cattle ; but when cows eat them, the butter is as bad as from turneps. They reckon an acre much more valuable than the best turneps.

Patches of hemp through all this country.

Leave Leiston. View the abbey, which shew in its ruins the grandeur it once possessed ; the farmer who lives at it, assured me, no manure he has tried is better than the mortar rubbish of the walls. Crossing a bridge in a marsh, enter the farm of Mr. Robinson, tenant to Sir Gerard Vanneck. It is extremely large, and the rent 700 l. a year, the road passes through it for three miles, and it extends very much to both right and left. Here are three of the greatest farms in the county contiguous, Mr. Robinson's, Mr. Howlett's, and Mr. Sparke's, their rent together is above 2000 l. a year. Crossed Mr. Howlett's, tenant to Sir John Blois, for a considerable distance, who appears to carry on his business with admirable spirit. His fields are very large, from 100 to 130 acres each, and were now covered with as fine corn as ever I beheld, without a weed to be seen. I passed through one of oats, which I should not guess at less than eight or nine quarters an acre ; and viewed barley that must yield five or six at least ; and wheat to four and four and a half : a glorious spec-

spectacle! such crops when covering so large an extent of land. His course of crops has been 1 clay on the old waste, or new clover and ryegrass lays, and dibbles in pease on one ploughing; 2 wheat; 3 turneps; 4 barley or oats; 5 clover and ray-grass for three years; which is admirable husbandry. In claying, his exertions have been considerable: and he uses for it (as do all his neighbours) three-wheeled one-horse carts only, which, from experience, he finds the most profitable method of moving manure, whatever the distance. He has had 30 of these carts at work at a time.

He has tried a second claying, nine or ten years after the first, and found it to answer perfectly well.

Came next to Mr. Sparke's farm, Sir John Rous's, the landlord, who is famous for the great quantity of stock he keeps on a corn farm. Last winter he fattened 130 oxen, and 70 score of Wiltshire wethers. He uses great quantities of oil-cake, and in a manner not common, for he gives the cake one day and turneps the other, alternately. All through this country they carry off half the crop of turneps, and feed the other half on the land.

Pass Wrentham, Bennacre, where Sir Thomas Gooch has a very large house, with a plain, handsome, and extensive front; to Pakefield and Loe-stoff, in which line the agriculture is by no means equal to what I had lately gone through.

Follow the shore to Løestoff; the principal support of the place is the herring-fishery, in which they have 40 boats, each of 40 tons, which they build themselves, at the expence of about 6 to 7 l. a ton: to each boat there are two fleets of nets, the price of which are 300 l. Each boat requires eleven men. They catch from 10 to 40 last of herrings per boat; average 20; and the mean price 12 l. a last, rising from 6 to 20 l. A last requires 5 Ct. of salt. The men are paid wages, except the master, mate, and one other; these by the last. To four herring smacks, there are two boats employed in landing the herrings; they are carried immediately to the salting house, washed in fresh water, spitted, and hung up in drying-lofts; fires are made under them, the fuel oak, elm, or ash billet, cut out of the arms of timber trees; other wood not so good; when dried, they are packed up in barrels and shipped for the mediterranean. The nets and casks are all made in the town. The boats are laid up all the year, except from september 22, to november 22, which is the season. If built larger than 40 tons, they are not so well for the fishery.

Both this town and Yarmouth have as many smacks as ever; yet the trade is much declined in the three or four last years; owing not to a want of fish or demand, but to the expences of all sorts rising. Dr. Campbell, in his account of Løestoff, takes no notice of this almost only branch of trade; but speaks of a lobster-fishery here, which has no
existence.

existence. There is a manufactory of china belonging to Mr. Walker, which employs about 70 hands.

What is here called the Island, which is a Hundred, is a pleasing, and, in many respects, a most eligible country; besides the sea which skirts it on one side, it contains four or five *broads*, lakes of from 100 to 500 acres, and is nearly surrounded on two sides by a considerable river. There is every where a pleasing inequality of surface; much wood; great plenty of game; and fishing in a perfection scarcely any where else to be met with. A lake of 300 acres, and a little farm, with a house, were let here, not many years ago, for 12 l. a year.

Husbandry, in the island, is by no means perfect. Their course, 1 turneps, 2 barley, 3 clover, 4 wheat, 5 barley, 6 pease; they assured me, that clover sown once in four years fails, but does very well in six; it comes up finely, but dies away in march. The soil is generally sandy, lets much of it from 15 to 20 s. an acre.—

Now to return from this retrograde digression.—Passed over some poor land, commons, and uninteresting husbandry, till we came to Wantesden; where, on making further enquiries, we found, that Mr. Curteen, of the Hall, has four acres of CARROTS FOR HIS OWN CONSUMPTION ONLY, giving them to his horses. Mr. Simpson was, for many years, on the same farm, and constantly in the same practice, always had a crop for his

his horses, and neither he nor Mr. Curteen ever sold a load to London. Here, at last, after a research that has employed me from time to time for years, I have found what I wished. I had my intelligence from a labourer that worked with Mr. Curteen; it was soon after confirmed by a neighbouring farmer, who said there were some others in the same practice as well as Mr. Curteen, I would have gone to his house and searched the adjoining country for more instances, but the day was closing, and we were obliged, not only to reach Saxmundham at night, but to hasten home on engagements.

Here ends our carrot intelligence; it will not be, therefore, improper to review the day, and bring into one point of view, the several particulars we have gained. Without recurring to every article of the culture, it will be sufficient to touch only upon the principal objects which have been the subject of doubt and disquisition.

At Sutton, six horses two loads a week; no corn; and eat little hay.

At Shottisham, six horses one load a week with corn; in the spring two loads without corn: eat little hay.

At Ramsholt, six horses 72 bushels a week; no oats; and half the hay saved.

At Alderton, six horses 42 bushels a week; oats given; and saving of hay not considerable.

At

At *Ditto*, oats given because not carrots enough.

At *Hollesley*, six horses two loads a week ; no corn ;
more than a fourth of the hay saved.

At *Capel*, six horses one load a week ; no corn ;
save more than half the hay.

Upon reviewing these circumstances it appears, that two loads a week are a very large allowance, probably more than are necessary ; seeing that with 72 bushels at one place which is $1\frac{1}{4}$, and one load at another, all the corn is saved ; let us therefore decide, that when six horses eat 80 bushels of carrots a week, which is 13 bushels a week for one horse, they want no corn whatever, and will eat only half the hay of corn fed ones. This will enable us to ascertain the value tolerably, though not exactly, because we do not know what would be the fair allowance of oats to balance such feeding with carrots. The whole turn of the intelligence ran upon the vast superiority of condition in which horses are kept by carrots, to that which is the result of corn-feeding, for this evident reason, carrots are given nearly, if not quite, in as large quantities as the horses will eat ; but oats are never given in such a manner, they are always portioned out in an allowance very far short of such plenty. A quarter and half of oats would, I am persuaded, from the general turn of every man's conversation, be inferior to two loads of carrots : this at 20 s. is 1 l. 10 s. there is to be added the saving of half the hay, which may be called ten pounds per horse
a day

a day, or six pounds per week, which at 50 s. a ton is 1 s. 4 d. per horse, and 8 s. for six, which added to 1 l. 10 s. for corn, makes in all 1 l. 18 s. against 80 bushels; or 19 s. a load: and that this is a moderate calculation, appears from the decided preference given by several of the farmers in favour of carrots at 15 s. a load, against oats at 20 s. a quarter, not reckoning the carrots by any arbitrary estimation, but supposing themselves forced to *buy* the one or the other.

The prime cost is calculated at 7 s. a load; and that this is fair, will appear by the following articles,

Rent, tythe, and poor rates,	£. 0	15	0
Ploughing, - - -	0	7	0
Harrowing, &c. - - -	0	1	0
Seed and sowing, - - -	0	6	0
Hoeing, - - -	0	18	0
Taking up 10 loads, at 1 s. 2d.	0	11	8
	<hr/>		
	2	18	8
	<hr/>		

The tenth of which is 5 s. 10 d. or per bushel 1½ d. call it, however, 2d. per bushel, or 6 s. 8d. per load; and, if to square with one article of intelligence it is made 7 s. it will not amount to 2½ d. the bushel. Here, therefore, another view opens upon us, which is the farmer's *profit*; the carrots are worth in feeding his team 15 s. but they cost him

him only 7 s. he has, therefore, the advantage of 8 s. a load as the grower, on all his horses consume, and on an average 4 l. an acre.

Another way by which my friend Mr. Lowzofski made his calculation, was this,

At one load and a half of carrots, nine loads a moderate acre, lasts six horses six weeks (N. B. He was inclined to think from the intelligence, that one load and a half ought to be esteemed the proper quantity) and save six qrs.

of oats, which at 20 s. is, - £. 6 0 0
 3½ Ct. of hay a week saved 2½ Ct. at 2s. 6d. 2 12 6

		8	12	6
The carrots may cost	-	3	3	0
Farmer's profit per acre by feeding horses		5	9	6

It admits of various calculations ; but view it in any light you please, the result is nearly, though not exactly the same.

Two facts result most clearly from this intelligence ; that horses will do upon them as well as upon oats ; and that this application will not only pay the charges of culture, but leave a *profit*, nearly, if not quite as great as the *gross produce* of a common crop of wheat. No wonder, therefore, the farmers cultivate them for their own use alone, without any view to a sale.

It

It should further be remarked, that this result takes place, not in a district where the horses are poor mean animals that betray a want of good food; but, on the contrary, amongst the finest teams, without any comparison that are to be found in England, and that these teams are fattest, and in the highest condition, when they are supported by carrots. No greater proof of the excellency of the food can be wished for, than the horses going through the barley-sowing upon it, and the root doing better at that season of hard labour than earlier in the winter: this seems to speak the heartiness as well as wholesomeness of the food. One conclusion very naturally arises from this part of the intelligence; that the crop, or a considerable part of it, ought to be taken up in autumn and packed in a barn; in which they would much sooner lose their juicyness, and acquire that more withered state, in which they are found to yield the best nourishment.

The next circumstance to be attended to, is the advantage of the plant as a preparation for corn; all the preceding minutes agree, that the barley after them is good and clean; several persons were inclined to think it equal to that after turneps fed on the ground; but the fair result is evidently, that if carrots were so fed, the barley would be much superior; of this the intelligence will not permit us to doubt. It is, however, fair to observe, that they one and all declare for putting them in upon clean land, and in this course, 1 tur-
neps

neps, 2 barley, 3 carrots, 4 barley, &c. from which it appears, that on these sandy soils they are not to be depended upon for cleaning them when foul with spear-grass.

I cannot conclude the subject, without earnestly calling on all persons who have sands, or light sandy loams, to determine to emancipate themselves from the chains in which prejudice, or indolence, have bound them. To cultivate this admirable root largely and vigorously ; to give it the best soil they have ; to plough very deep ; to hoe with great spirit ; and to banish corn from their stables, as a mere luxury and barren expence that ought to be extirpated ; an effect that flows very fairly from the preference which the sagacious four-footed inhabitant universally gives to carrots.

July 25th, left Saxmundham, and took the road to Heveningham, the magnificent seat of Sir Gerard Vanneck ; I had not viewed it before ; and, it was with great pleasure I found there had at last arisen a structure in Suffolk deserving the attention of travellers : our sister county Norfolk had long been thus decorated. Those who make the Norfolk Tour, will now find it essential to take Heveningham in their way to that county. Mistley and Woolverston unite to call for such a conduct. These papers are already so much more voluminous than I expected to make them, that I can touch on but few circumstances of this magnificent residence : the house is an old one repaired with additions, and is certainly a master-piece of
con-

contrivance and ability in the architect *. The apartments are large, the disposition convenient, the ornaments elegant. The dinning room and library will more than satisfy ; they must please every eye. The situation of the house is on the side of a hill, backed by plantations, and flanked by two very noble woods of full grown oak, it slopes down to a vale through which the water, large enough to be interesting, is made to wind ; the opposite lawn which spreads upon another hill, is prettily scattered with wood in the modern and just taste. Sixteen miles of a riding levelled, laid to grass, and kept mown for convenience, conducts to the principal points of view. It is well traced through a great variety of ground ; close woods, open groves, lawns, meadow, corn-ground, &c. in a pleasing succession : every view commands a rich and fertile woodland country ; but the most pleasing points are those, where the house and water unite to form a confined landskip through a foreground of some large oaks : and from the hill where the water is first seen rising from Queen Elizabeth's oak. Those scenes are magnificent. That tree is a most venerable one tradition reports, that the Queen hid herself in it (for it was then hollow) to shoot the deer as they passed. We measured it, 33 † feet in circumference 5 feet from the ground.

To

* Mr. Wyat.

† The Cowthorpe oak, the largest in England. is 36 feet, 6 inches, in circumference 5 feet from the ground. The oak

To Framlingham by Yoxford. About that place the country very beautiful, slight hill and dale, well wooded, and highly dressed from many seats; Mr. Staunton's, Sir John Blois, (Mr. Archdeacon lives in it) Sir John Rous, Mr. Crawford, Mr. Davy, &c.

Entering now the region of the true Suffolk polled cows, which are unexceptionably the finest in England for milking, we made enquires; dairies rise to 40 and 50; the points they attend to are these—a long body, large carcass, clean throat, snake-headed, thin tail, and short leg; they give six gallons a day in the height of the season. Scarcely any farmer without a field of cabbages. To 40 cows they will have 8 or 10 acres, the sort the great scotch and american; get good barley after them, and very clean. The course, 1 fallow, 2 barley, 3 clover, 4 wheat, 5 beans twice hoed, 6 wheat,

oak in Holt-forest, near Bentley, at 7 feet, 34 in circumference. The fairtop-oak seemingly found in 1754; and the Earl of Thanet's, in Whinfield park, Westmoreland, 31 feet 9 inches. The handsomest in England, is in the Earl of Powis's park, by Ludlow, which, in 1757, was 16 feet 3 inches; but strait and clear for 60 feet. The Dunbarton ash 16 feet 9 inches. A Wych Elm at Bradley, in Suffolk, 26 feet 3 inches. Lord Ducies chestnut, at Tortworth, in Gloucestershire, at 6 feet, was 46 feet 6 inches in 1759, it is above 1100 years old. It was called the great chestnut in King John's time; Mr. Marsham calculates, that it was 540 years old when he came to the throne, and 11 yards in circumference. See *Bath Memoirs*, vol. 1. p. 76.

6 wheat, which is an excellent rotation for those who think fallowing essential. Wheat is rarely sown upon it, beans and clover giving finer and cleaner crops. Rents 13 to 16 s. an acre.

July 26th, leave Framlingham, after viewing the castle and church; the road to Debenham leads through the midst of the great dairies. The soil very rich and admirably adapted to grass. I went into some new lays, and found the luxuriance of growth wonderful; in some of the richest, the great staple of the herbage consisted of, 1 *trifolium repens*; 2 *plantago lanceolata*; 3 *ranunculus repens*. The two first excellent plants, that are ever abounding in fine pastures; and the last usually in low meadows. In other very rich ones, I was surprised to find great quantities of the *ononis spinosa*, which Hudson says, *habitat in pascuis sterilioribus*; but abounds here in very rich soils. Viewed many dairies, and was exceedingly pleased with the breed; they are very fine beasts to the eye of a man accustomed to good milkers. We saw one very ill made cow, in respect to roundness of carcass, milked, and she gave a three-gallon pail quite full, which is not uncommon in this country; some few give four gallons twice a day. They prefer oat-straw in winter for their cows to any other; next wheat-straw; and, last of all, that of barley, which is much the worst. For the cows that give milk at that season, cabbages or hay are the food, especially the former; and many give both, only baiting with cabbages. About Earl Soham, they are of
opinion,

opinion, that one good acre of cabbages will do for seven or eight cows, giving as much food as three of turneps; they make the cows give more and better butter than turneps; and are, besides, excellent for all sorts of cattle, as sheep, hogs, &c. They plant 7000 on an acre as early as they can from a spring sowing; they get good barley after them, yet are of opinion that they exhaust the land; but in carting them off, it is not so much damaged as with turneps, nor such holes left to retain water. I viewed many pieces, but none that were so fine as Mr. Salter's, who informed me, that he dunged one part of his field at the rate of 60 loads of compost per acre, and the other part 30 loads; the former were much the finer, but the whole promised to be an exceedingly fine crop. He has no doubt of being able to sell them for 6 l. an acre, if he was willing; he wished he had planted the whole field, one part being in turneps. The course here is, 1 fallow, 2 barley five or six qrs. 3 beans or clover, 4 wheat. The soil is a rich, moist, friable loam, on a strong blue clay. Rent 20 s. Some pieces 40 s. an acre rent, tythe, and rates.

From Framlingham, for six miles of the way to Debenham, we tried Mr. Laurent's experiment * of the proportion of the several crops, and found, that in 129 fields, the parts were,

* See vol. I. p. 240.

Grafs,	-	-	54
Wheat,	-	-	24
Barley,	-	-	6
Oats,	-	-	5
Beans,	-	-	11
Cabbages,	-	-	11
Turneps,	-	-	3
Pease,	-	-	3
Fallow,	-	-	6
Clover,	-	-	1
Winter tares,	-	-	3
Hemp,	-	-	2
			<hr/>
			129
			<hr/>

But, from observation, we determined that the result is by no means exact. The grafs fields were on an average smaller than the arable; and the farm-houses being near the road, brought the grafs to be more contiguous to us. The cabbage pieces were most of them small. The hemp the same, and the real proportion of clover much more. This sketch, however, is enough to prove the country very well arranged.

About Debenham, the great dairies continue. Mr. Hawes, of Wetheringsfett, had 101 cows, but now grazes many beasts, having lessened his dairy. The price of their best cows 8 l. 8 s. to pick a dairy. Much better butter from cabbages than from turneps, and more of it: the crop worth 5 or 6 l. an acre; but never rises to 10 l. They are reckoned

reckoned to *draw* the land more than turneps. I asked, if the barley after them, was as much inferior to that after turneps, as their value exceeded that of turneps? They thought not. The value of cabbages through all this country must be very great, from the vast consumption there is of hay. Mr. Steptow has 35 cows, and about 20 head of young cattle, which, with his team, eat last winter 100 loads of hay. The course, 1 fallow, 2 barley five qrs. 3 clover, 4 wheat, 3 qrs. 5 beans, 6 wheat.

At Stonham Aspal, I had the pleasure of calling on Mr. Toosey, and took a hasty walk over his excellently cultivated farm. His lucerne, in the second year, transplanted, is very fine; and, as this plant does not come nearly to perfection till the third year, Mr. Toosey has planted rows of cabbages between those of lucerne, a very good thought, which will make the land answer well for waiting for the improvement of the principal crop. The whole was perfectly clean and free from every weed. I viewed also his cabbages, five acres of very fine plants, and in a truly garden degree of cleanness. He is a great advocate for this crop on strong soils: finds their use for all sorts of cattle very great: one acre maintains four cows the winter, with the assistance of straw; and, as he has found that a cow will eat two ton of hay, every good acre of cabbages consequently saves eight tons of hay; if half a ton is allowed at calving it is a deduction of two, the remaining six at only 40 s.

are 12 l. for the acre of cabbages. When land is in proper order he does not find that cabbages exhaust; has had 10 quarters of oats per acre after them.

Mr. Toosey has been some years a very attentive practiser of Mr. Bakewell's cattle-husbandry. His farm consists of 70 acres, in very compleat management, as may be easily collected from the quantity of cattle it supports; viz. 25 sheep, 8 horses and colts, 3 working oxen, 4 cows, 1 bull, 16 beasts, heifers, and steers, in the succession system, bred and sold fat steers, or with a calf if heifers; all which cattle are kept by 50 acres of grass, of which 12 are mown for hay: from 5 to 12 of cabbages, 8 of straw. But he buys, as every good husbandman should, as much straw and stubble as he can.

His cattle are of Bakewell's breed, which is, in one word, giving them sufficient praise: the bull which he calls *Twopenny* from that of Bakewell's, of which I gave an account in my *Eastern Tour*, is, in every respect, a very fine one, particularly in the breadth and straitness of his back, the barrel carcass, and the short leg. He leaps cows at half a guinea, at which rate many have been brought to him, which shews that there is some taste in this country for breeding. The cows and other cattle whole bred, for Mr. Toosey bought cows and heifers of Mr. Bakewell as well as *Twopenny*, are of a very perfect mould. In tying up all his cattle, Mr. Toosey copies Bakewell's system; they are all tied

ried up to straw, or hay and cabbages; littered well, and cleaned twice a day; the dung piled up against the sheds, and the urine, every drop of which is saved, thrown regularly on it. The water from the eves of the building is all conveyed away, that it may not dilute the urine, an attention that cannot be too much commended. The sheep are equally well made with the cattle; some few he sells for the breed, but gets from 30 s. to 3 l. for two year old wethers from the butchers.

A practice in which this gentleman is perfectly original, is that of stall-feeding his sheep in winter; he does it exactly in the same manner as with oxen, having racks and mangers provided for the purpose. It is only experience that can decide on the project; perhaps an animal so well defended against the cold by his fleece, should never be kept hot: it must be essential, in executing this plan, to have the sheds as open as possible, and to allow a good distance from sheep to sheep.

Upon occasion of straw and stubble being scarce, Mr. Toosey bedded all his cattle with sand, and found that, with a small addition of litter, it did very well; he left it off merely because of the expence of carriage, as he had three miles to go for it. The heaps of dung, just mentioned, are moved to the compost heap several times in a year, as by frequent stirring he can rot it in three months, it is then mixed with earth and chalk. This system I conceive to be erroneous—that the oftener

dung is moved, the more of its virtue is lost ; that a slow fermentation reduces dung to that mucilaginous state in which it should be used, with much less loss than an accelerated fermentation, which, from frequent stirrings, carries off so much of the volatile alkali, that the remaining mass is robbed of its richest qualities. In general, however, Mr. Toosey, by buying straw, &c. bringing chalk seven miles, raising a large quantity of dung, and saving all the urine, keeps his farm in most rich order, and secures very large crops. It requires two men in winter to take care of the above cattle, move the dung, and bring cabbages, but they have leisure time, which is employed in chalk cart.

In his cabbage culture, he frequently aims at having a crop of corn between the rows. The ridges are from three feet and a half to four feet, on which he plants a double row of beans in march, very near each other ; and, at midsummer, taking off a furrow on each side with the plough, throws up a little ridge in the thorough, on which he plants the row of cabbages ; when the beans are removed, the ridge where they grow is cultivated and becomes the thorough to the new ridges on which the cabbages remain. In this manner he gets from five to seven combs an acre. Prefers the mazagan sort, because they are off soonest. Sets in march, and gets them off by the 25th of july, removing the sheaves into a grass field

field to dry. Charlton pease, wheat, and oats, he has managed in the same manner, getting three combs of pease, as much wheat, and up to ten combs of oats, which is very considerable.

Has had $23\frac{1}{2}$ combs of Tartarian oats per acre, over the whole of a small field.

I have said nothing of Mr. Toosey's black horses. They would figure greatly in any part of England, Suffolk only excepted; but the breed which I have already described, are so superior to all others, that I have not a more earnest wish than their universal reception, to the utter exclusion of every black breed.

This very accurate and ingenious cultivator is about to emigrate to Canada. He has accepted the office of minister of the church of England there; and means to transmit his cattle, his implements, and his knowledge, to the deserts of the New World. It is of course to his personal advantage; but, as an englishman, I regret that any circumstance should deprive my country of the services of a man, whose taste has taken a decided turn in favour of agriculture. Every man who actually steps beyond the skill of his neighbours, should receive encouragement AT HOME, and proper means be taken to enable him to call his talents into full exertion, for the benefit, not of himself, but his country. But that nobler part of the government of a great empire, which consists in promoting, by due encouragement, the activity of

well employed individuals in the pursuits to which their genius leads, is the last consideration of english ministers, whose conduct is sure to convince the subject, that it is of little consequence in what manner talents are employed.—A Newton on a shoeblick's stool instead of a professor's chair—A Priestley mending old cloaths, not making experiments—A Brindley driving a carrier's waggon instead of directing a canal—And a Harrison employed on spatterdashes not time-pieces — All would be the same to the government of this kingdom. But thanks to the vigour which liberty inspires—genius sometimes makes its way and doubly triumphs over public neglect and the difficulties of private life.

At Stonham we were within two miles of Crowfield, the seat of Mr. Middleton; I shall copy the minute I took there a year ago.

“ About Crowfield, the soil very wet, but rich good loam on clay and clay-marle: hollow draining is done by the farmers, but not the twentieth part that ought to be. I observed no farm without a small field of cabbages, which they take off the land in carts for their cows, &c. Mr. Middleton's father began this husbandry about 25 years ago, but was not imitated by any of the common farmers. Land lets at 14 to 16 s. an acre.

The present Mr. Middleton pursues the cabbage husbandry with great spirit and success. He had

had this year 20 acres ; but the extreme unfavourableness of the season, has rendered the crop very small in comparison of what he has had in former years. Yet he values them (for cattle) at 40 s. an acre. His method of culture is to sow the seed, half a pound for every intended acre, the first open weather in february ; the american sort, which comes to a great size, and lasts good very late in the spring. The field being well ploughed, manured with from 20 to 30 loads an acre of dung and earth compost, and left on three-feet ridges ; the plants are set one row on each ridge the first favourable weather in june, the sooner the better, two feet and a half from plant to plant. He horse-hoes the furrows, and keeps the rows clean by hand-hoeing.

I made many enquiries relative to the corn that followed cabbages, whether they were to be esteemed an exhausting crop or not ; accounts were various and contradictory ; but the balance seemed to be in favour of the first opinion, that they exhausted considerably.

It is proper to observe, that the contracts for four-croft have very much spread this branch of agriculture within reach of the shipping at Ipswich, as some gentlemen have sold them at high prices. Mr. Middleton 10 l. an acre ; Mr. Acton, of Bramford † 13 l. an acre.

In

† See an account of his husbandry in the *Eastern Tour*.

In fattening an ox, Mr. Middleton remarked a circumstance highly deserving of attention; he killed one that was 14 years old, having been worked many years, and the beef, contrary to expectation, was remarkably fine; the fore quarters uncommonly so, the drawing having given the beef a finer grain than usual. This is a valuable fact, for it not only proves that working makes good beef, but also, that a man may keep his oxen at work as long as they will move well, without any apprehension of their not fattening well when aged."

Upon a former occasion † I had examined the culture of hops at Stowmarket, and shall insert here the notes I took.

In the neighbourhood of that place there are about 200 acres of them; but 18 or 20 acres are grubbed up and turned to meadow within two years, owing to the badness of the times. The soil they plant on, is a black loose moor, on a gravelly bottom, very wet and boggy, lying on a dead level with the little river that runs by the town; the more boggy and loose it is, the better the hops thrive, especially if the gravel be within three feet; the neighbouring grounds rise in such a manner as to shelter them very well. Before planting, these morassy bottoms were coarse meadow, worth about

20 s.

† July 4, 1782.

20 s. an acre, and some much less. In preparing them for hops, they form them into beds 16 feet wide, by digging trenches about three feet wide, and two feet, or two feet and a half deep, the earth that comes out being spread upon the beds, and the whole dug and levelled. Immediately upon this, they, in march, form the holes six feet asunder every way, 12 inches diameter, and a spit deep, consequently there are three rows on each bed. Into each hole they put about half a peck of very rotten dung, or rich compost, scatter earth upon it, and plant seven sets in each, drawing earth enough to them afterwards to form something of a hillock. Some persons in the first year sow french beans, or beans, and plant cabbages, but not reckoned a good way by Mr. Rout, to whose obliging communication I owe the particulars from which I draw this account: in about two or three weeks, but according to the season, they will be fit to pole with old short poles, to which they tie all the shoots or vines, and then keep the land clean by hoeing and raking; at midsummer they hill them. The produce the first year will be three, four, and even five hundred weight of hops per acre. After this they reckon them as a common plantation, and manage accordingly.

Manure is not always given regularly; but amounts, upon an average, to 10 loads a year, value 5 s. a load in the plantation. They keep it
till

till it would run through a sieve, which they prefer to a more putrid state.

The labour of forming the beds for a new plantation by digging the drains, &c. amounts to 4l. an acre. That of the annual work, picking excepted, is put out to the men at 4l. an acre per annum, for which they dig, strip, stack, clean drains, hoe, rake, hole, tie, &c.

Three poles are put to each hill, consequently there are 30 hundred (at 120) to the acre, at 24s. a hundred delivered. They are generally of ash, and the length they prefer is 24 feet. But in addition to this regular poling, when a hop raises much above a pole, they set another to take the shoot to prevent its falling, preventing the circulation of air, and entangling with the poles of other hills.

A hop garden will last almost for ever, by renewing the hills that fail, to the amount of about a score annually; but it is reckoned better to grub up and new plant it every twenty or twenty-five years.

The only distempers to which they are subject, are the fly and the honey-dew; they know the blast and the red worm, but they are rare; the latter chiefly on dry land. Lightening they think favourable, as it kills flies and lice.

Mr. Rout has raised a bank against the river about three feet high, to lessen the force of floods; but does not wish to keep them entirely out; as he finds, that if the water comes in gently, and does not wash the earth away, it is rather beneficial.

And,

And, he is clear, that if he was to let the river into his drains to a certain height, in very dry weather, it would be of service to the crop.

Relative to the expence of forming a new plantation, they had, many years ago, an idea that it cost 75 l. an acre ; and Mr. Rout is clear, that it cannot now be done under 100 l. Among other articles, he named the following :

Preparing the beds,	-	£. 4	0	0	
Manure,	-	2	10	0	
Planting,	-	1	5	0	
Setts if bought, or the labour in raising					
and cutting,	-	1	15	0	
Hoeing, raking, and moulding,		0	10	0	
Tying,	-	0	10	0	
Poling,	-	0	10	0	
30 hundred poles at 24 s.	-	36	0	0	
Shaving and knotting 6d. per hund.		0	15	0	
Carrying to the ground 2 s. per hund.		3	0	0	
Picking, drying, and bagging, 20 s. per					
Ct. 4 Ct.	-	4	0	0	
Duty 10 s.	-	2	0	0	
Two bags,	-	0	10	0	
Two years rent 20 s.	£. 2	0	0		
Tythe,	-	2	0	0	
Rates 7 s. in the pound,		0	14	0	
			<hr/>		
			4	14	0
			<hr/>		
			61	19	0

The

The gross calculation, therefore, includes some articles not noticed here, or takes a considerable portion of the expence of building the kiln. The annual expence they reckon,

Rent when the land is in order,	£. 2	0	0
Tythe - - -	1	0	0
Rates 7 s. - - -	0	14	0
Labour by contract, - - -	4	0	0
Manure, - - -	2	10	0
Picking, drying, and bagging, 20 s.			
per Ct. 8 Ct. - - -	8	0	0
Duty 10 s. - - -	4	0	0
Three bags at 5 s. - - -	0	15	0
Annual renewal of poles, suppose	4	0	0
Interest of money, - - -	3	2	0
Ditto kiln, - - -	1	0	0
	<hr/>		
	31	1	0
	<hr/>		

Mr. Rout's crops have varied from 1 Ct. which was the lowest he ever had, to 13 Ct. and he thinks was the greatest produce he ever received; on an average 8 Ct. and the mean price 4 l. per Ct.

8 Ct. at 4 l. - - -	£. 32	0	0
Expences, - - -	31	1	0

This account nearly resembles many others I have taken in different counties."

From

From this place returned home, finishing a little journey, instructive from the variety of intelligence I received, and pleasing from the conversation and politeness of my companions, who, I have no doubt, are convinced of the real importance of attending to the agriculture of the countries through which they may have occasion to travel.

I must indulge myself in a general observation on the county of Suffolk ; that it contains a variety of soil, and excellent management, not to be found in any other county in the kingdom. The *Sandlings*, near Woodbridge, is a much more peculiar district than any other I have seen ; and, in my opinion, much better worth the studious attention of those who would be masters of the art, than any part of England. All the excellencies of the Norfolk culture are found in the range of great farms on the coast ; such as marling and claying on a great scale, and the full execution of the admirable course, 1 turneps, 2 barley, 3 clover, 4 wheat. The heavy lands in what is called High Suffolk, are excellently conducted, and the cabbage culture no where else generally to be found in the fields of common farmers. The dairy farms deserve more attention than any in the kingdom * ; and the breed

* As I wish not to be misunderstood, I shall explain my meaning : it is not that our cows are larger, or finer, but they give more milk than any ; nor is this the principal point—the great question is, through the medium of what breed will a given quantity of grass produce most butter and cheese ? There are cows that may give a greater return, but not if food be considered.

breed of horses I have described, without any rivals. Hence we may give to Kent the undoubted superiority in cultivating beans, and drilling many crops—to Essex richness of soil—to Norfolk, perhaps, *quantity* of turneps—certainly to all the West of England for managing meadows—and other counties may be superior in some smaller points—but every circumstance considered, we possess, I think, the greatest variety in articles that demand a curious attention : and that traveller who neglects Suffolk, yet wishes to become deeply acquainted with agriculture, will find the omission not an inconsiderable one.

A. Y.

Bradfield Hall, July 28, 1784.

A TOUR TO SHROPSHIRE.

By the Editor.

MAY 26th, 1776, passed from Hertfordshire through London, in the way to Norfolk ; but having before described the common husbandry of part of Essex, I shall only observe, that about Epping I found the rent of ~~grais~~ 40 s. and for several miles at 20 s. Their courses on arable land,

- | | |
|------------|---|
| 1. Fallow, | 1. Turnips, |
| 2. Wheat, | 2. Barley, |
| 3. Oats, | 3. Clover, fed in the spring
and then summer-fal-
lowed for |
| | 4. Wheat. |

Much land-draining done ; but they complained greatly that in some clay fields the drains will not draw more than 4 feet ; for that space good corn, but the rest little the better for draining.

The effect of lime here is very remarkable. They bring it from Bow, 12 miles, lay a bushel a rod in summer, and stir twice or thrice for wheat. It lasts 12 or 14 years, and shews itself to an inch on all soils, but best on dry loam, and on clays after draining. They also mix it with hedge-row earth, they even reckon it better than dung.

Their products,

Wheat	3 to 5 qrs.
Barley	4 to 5
Oats	4 to 6.

To

To Bradfield by Chelmsford, Sudbury, &c.

June 5th, to Lynn. Crossing that poor uncultivated but extensive country between Culford and Brandon, I regretted, as I had done many times before, that it should be left so entirely to rabbits and sheep. It is not to be doubted but it might very profitably be cultivated. The rents are low, from 1 s. to 3 s. 6d. large tracts are let at, and much even lower than a shilling. I brought away specimens of the poorest parts, and of the white stuff called in Norfolk and here *cork*, which is under it, but which I found on trial to be marle, at least if faith is to be placed in effervescence with acids. The sand itself is poor, running, and nearly destitute of all adhesion; but this marle would enable it to yield a turf of grasses, and that would prove in succession the mother of corn and turnips. —About Weating, found a new and extensive enclosure, so that this tract, naturally not much superior to that mentioned above, will soon be found fertile and profitable. —Reached Lynn.

June 7th, took the road for Downham, the country various; near Wallington those high broad lands begin which spread from hence over an amazing tract of country, quite into Northamptonshire and Buckinghamshire; before I got to Downham, I saw very many with the furrows 12 inches deep in water. The husbandry of these lands demands the greatest attention in keeping the furrows dry, if not, one acre in three is lost. If the furrows are kept quite free from water, it is

the most excellent way of all others of laying wet soils dry.

The other side of Downham, about Denver, I met with some excellent, rich, loamy soils, that let at 20 s. an acre. Their course is, 1 turnips, 2 barley, 3 clover 1, 2, or 3 years; 4 wheat.

At Helgey the fens begin, and exhibit a melancholy appearance of a country which, from soil, ought to be among the richest in the world, but rendered of but little value by water.

In my Farmers Tour I mention a Mr. Canham of this country, who made a common practise of sowing wheat and beans alternately; I now passed through his farm, and found that my former intelligence was true, he practises it to a very considerable extent; but he hoes very little. His beans, all that I saw, were broadcast, and I cannot say much for the cleanness of the crops, yet they yield him in general 4 or 5 qrs. an acre, and the wheat as much. But the land is admirably fine; a mellow rich loam on clay, that lets for 17 s. an acre round.

What say the advocates for summer-fallowing to this instance, which is an experiment over a great many acres for many years? Beans when not hoed foul land as much or more than any crop, pease alone excepted. The fields must be full of weeds, which beyond all doubt exhaust, and these will be nearly in proportion, both in number and growth, to the richness of the soil. But summer-fallow is so little
essential,

essential, that even with wheat every second year it is found unnecessary.

All the country is laid on broad high lands. He sows 4 bushels an acre of beans. Mr. Canham has some hundred acres of fen land at 4 s. or 5 s. an acre, part of which is arable, on which he gets, however, such crops as $2\frac{1}{2}$ or 3 qrs. of wheat an acre, and 5 or 6 qrs. of oats, but most of it is appropriated to feeding young cattle.

I saw a few pieces of hemp at Sonthrey, and found that they sowed wheat after it. They keep their cattle here in the winter on fen-hay and straw; the former valued at 10 s. a load. All their firing is turf. The culture of the fens most common, is to plough and burn it in June, for

- | | |
|-----------------|-------------------------|
| 1. Colseed fed, | 4. Barley, |
| 2. Wheat, | 5. Ditto, |
| 3. Ditto, | 6. Rye-grass, &c. for 3 |
- or 4 years, then burn again.

Spring-wheat is sown; the Rev. Mr. Jones, of Ely, has 400 acres this year, and it promises well. Yields 2 qrs. or $2\frac{1}{2}$ an acre, and oats 3, 4, and 5 qrs. an acre.

At Littleport the fen ends. We come upon high gravelly land. It continues all cultivated to Ely. Just before that city it is common field; the course,

1. Fallow,
2. Wheat, 4 or 5 qrs. an acre.
3. Barley,
4. Ditto,
5. beans 4 or 5 qrs an acre broadcast and foul.

The fens in general pay 1 s. an acre in tax to the mills for draining, and from 3 s. to 6 s. an acre rent. In general 7 s. an acre in all.

Ely is noted for white bricks and gardens, there are many kilns for the former, and they sell about 22 s. a thousand. The richness of the soil, which is uncommon, encourages the latter, though it lets at 3 l. an acre.

June 8th, left that place and took the road for Cambridge: two or three miles south of Ely; the pastures very rich, letting at 20 s to 35 s. an acre; and open field arable from 12 s. to 20 s. The course,

1. Fallow,
2. Wheat, 4 qrs. an acre,
3. Beans, 4 or 5 qrs.
4. Barley, 3 to 4½ qrs.

At the distance of 4 or 5 miles the same course continued; wheat yielding 3 qrs. beans 2½ to 4, barley 3½ and 4; all open field, and let at 10 s. an acre. I passed a very extensive field all beans, and full of weeds and rubbish; scarce any hoeing in the country. All in high broad lands.

At Stretham the same lands, with some of them with open grips in the furrows, and an edging of grafs a foot wide on each side. This place is a village of farmers houses, &c. surrounded by great open fields, much I suppose like France.

Passing Stretham bridge, the road runs through a vast sheet of watery fen, called *Water Beach Level*:
molt

most of it was once drained, and part cultivated in arable ; but from breaches in the banks, or neglect of draining, has become near three feet deep of water. It is of great extent, near 4 miles one way, and full as much another. Cottenham-fen on the other side the road, lies in the same situation. It is overgrown with reeds called here *white leed*, which they mow for hay when the fens are dry enough to admit it, which this is not ; and fen-men tell us it is excellent stuff for cattle. The soil is a black turf or moor, 3 feet deep. It is a kind of open field belonging to Waterbeach and Stretham. It has not been dry enough to mow these three years ; the part that lies rather higher than the rest, used to be treated upon the fen system, of ploughing up and burning the furrows for coleseed, which was fed off, and then oats, of which a last, or 21 combs, has been gained an acre. These oats are succeeded by two or three crops more, and the average produce in all about six or seven quarters an acre, afterwards it is left to turf 3 or 4 years, and then burnt again.

Labour.

In winter 5 s. or 6 s. a week.

Hay 9 s. do.

Harvest 2 l. 2 s. and board for 5 or 6 weeks.

Leaving this watery country, the road leads over extensive commons and open fields, that are a fine reddish loam on good gravel : and here I saw great stocks of cows and sheep. All the arable are open

fields and on high broad lands, let from 8 s. to 10 s. an acre. At Milton it is a very fine loam on gravel, and continues so to Cambridge. They plough with 4 horses at length, but towards Cambridge with only three.

I passed through Trumpington, in which field I observed them with horses double, four generally. The soil is a light loam, and the stated course,

1. Fallow,
2. Wheat,
3. Barley,

all on lands, but moderately high, and in some of the furrows stripes of rushes. The field lets at 8 s. or 10 s. an acre, wheat yields from 5 to 8 comb, barley not so much; part of the field, instead of fallow for wheat, is by agreement turnips for barley; farms generally from 100 l. to 250 l. a year.

An intelligent shepherd informed me, that 18 score sheep with their lambs would fold an acre in four nights, but he did not reckon it worth 30 s. The profit of their flocks are lamb and wool.

Lamb 6 s. to 9 s.

Wool 2 s. and 2 s. 6d. a head.

About 10 s. 6d. a head in all:

They fold till christmas, and then put to turnips; for his 18 score his master generally sowed 24 acres; besides feeding off some rye after christmas, and they would last them till lady-day, when they went to the field again,

Near

Near Hauxton-mills is the first place where chalk is distinctly seen, it lasts from hence quite across the kingdom.

The country is all open field quite to Royston, the villages being groups of a few inclosures, and wood, with houses and a steeple, and surrounded by the common fields.

About Melbourne the land is all chalk, the surface being chalky on a hard chalk that breaks into cubes and oblongs : it is open field, and lets at from 3 s. to 5 s. or 6 s. an acre. The course,

1. Fallow ploughed three times,
2. Wheat or barley,
3. Beans, oats, or pease.

The wheat yields from 1 qr. to 2½. Barley 2 qrs. Oats 2 or 3.

I was much pleased to see about Royston many ploughs going with two horses abreast, and without a driver : a very uncommon sight within the bounds of Hertfordshire. About that town the open fields let from 7 s. 6d. to 10 s. 6 d. an acre, it is all chalk, and very good. Wheat yields from 2½ to 4 qrs. an acre ; barley up to 5 qrs. The farmers are sensible intelligent men, for they agree among themselves to sow turnips instead of fallowing on many of their lands ; and also sainfoine, by keeping off their sheep in the spring. It succeeds excellently, has been worth at one cutting 7 l. an acre ; but they dress it well with ashes or malt-dust. They use also much oil cake for their land, laying

1000 cakes on 3 acres, which cost them 10 l. at home.

Taking the road to Stevenage, I found the country continue entirely open, and all chalk, with very fine crops on it; winter tares were cutting for soiling. Much trefoil was sown with clover, and as high and luxuriant as the clover, agreeing perfectly well with the soil. The open chalky fields continue to Baldock. At Stevenage I found that excellent farmer and worthy man, the late landlord of the Swan, Mr. Whittington, of whose husbandry I have given an account in my *Six Months Tour*, had been dead eight months. His widow carries on the business. Reached my own farm at Northmims that night.

Rested Sunday the 9th, and the next day to St. Alban's. Towards Dunstable, I found the land exceedingly good, and letting in general at 20 s. an acre. The most usual course is that excellent one.

1. Turnips fed off with fat sheep from Leicestershire, &c. at 40 s. to 50 s. an acre.
2. Barley 5 or 6 qrs. an acre.
3. Clover mown for hay or soiling.
4. Wheat 3 qrs.

Passing Gorhambury, the seat of Lord Grimston, in a country beautifully wooded, I found whole farms through at 15 s. an acre; the wheat yielding 25 bushels, and the barley 5 qrs. Much wheat here is sown on the turnip land that is fed off early.

Clover-

Clover-land wheat they get in if possible before michaelmas. They bring much foot and ashes from London, the former they sow on their wheat in march, from 20 to 40 bushels an acre, and can see to an inch where it is laid. The ashes they lay on their clover. Within 6 miles of Dunstable, the land runs at the same rent, and is still under the husbandry of 1 turnip, 2 barley, 3 clover, 4 wheat. Here I met with beech trees, and rough brown flints, they are commonly seen together : I expected sainfoine to make the trio, but saw none.

Passed a beautiful tract of country, with the village of Floyds to the left, and some pretty hanging inclosures fringed with trees.

Dined at Dunstable, and taking the Brickhill road, came in 2 miles to Tilworth, a new inclosed tract, which was 8 s. an acre, but now from 15 s. to 20 s. The country is however mostly open. The course,

1. Fallow,
2. Wheat 16 to 20 bushels, or barley 4 qrs.
3. Beans 25 to 30 bushels, weeded by sheep.

Passed Hockley, a long village, in which every third house was a public one : this road swarms with broad-wheeled waggons. The soil is rich. Grass-land lets from 20 s. to 40 s. an acre. The arable 15 s. to 20 s. The poorest open fields at 7 s. 6d. The course,

1. Fallow,
2. Wheat, 20 to 30 bushels.
3. Beans ; barley yields 4 or 5 qrs.

They

They have large dairies, up to 30 cows, and reckon that they pay 6 s. a week in summer. I observed that the high, crooked, broad lands which began with me near Downham, in Norfolk, upon this journey, and which I lost when I came upon the chalks, here met me again about Hockley, where the chalk no longer appears.

About Fenny Stratford the land is very rich. Grass lets from 20 s. to 30 s. and arable 20 s. round, for there are many new inclosures here. The course is,

1. Fallow,
2. Wheat, 20 to 30 bushels,
3. Barley, 4 qrs.
4. Beans or oats, 25 bushels.

Another,

1. Turnips all hoed,
2. Barley,
3. Wheat,
4. Beans weeded by sheep.

These people are but feeling their way towards Norfolk. The open lands were let from 6 s. to 10 s. now they are 16 s. or 18 s. inclosed. Pease yield 20 to 30 bushels, and oats 5 or 6 qrs. Clover they mow twice for hay, and get 4 load at the two; sells at 1 s. 6d. to 3 s. 6d. per Ct. They plough with 4 or 5 horses at length, and do an acre a day.

Dairies are large; towards Newport Pagnel they rise to 40 or 50 cows, all for butter, which is sent regularly to London. They also here fat many cows: buy in at from 4 l. to 8 l. at lady-day, and clear

clear twice by michaelmas; cows at 6 l. will become 9 l. and that, or near it, twice. The land 30 s. an acre. As to swine, the dairies do not breed so many as they fat; they buy them in lean, and will make them pork in 6 weeks. Those they breed are summer-pigs mostly; they know nothing of the use of clover for them. Sheep they fold in the open fields, but flocks are not large enough in the inclosures. They have one very peculiar circumstance; flocks come from Banbury, 30 miles off, and are hired by the farmers here, who keep them on the fallow-fields, folding them. The shepherds come with them, and they stay all the summer.

Profit of Sheep here.

Lamb,	-	-	£.	0	11	0
Wool,	-	-		0	1	3
				<hr/>		
				0	12	3
				<hr/>		

Provisions.

Bread excellent 9 lb. for	-	10d.
Butter,	-	8d.
Pork,	-	4½d.
Mutton,	-	4½d.
Beef,	-	4½d.
Potatoes 6d. to 1 s. a peck.		

Labour.

In harvest 36 s. and board.

Hay 6 s. a week, and do. mowing.

Winter 5 s. a week.

The lace manufactory abounds through all this country. Poor rates continue much as they were, 2 s. 6d. in the pound.

Finished the day at Stoney Stratford, and next morning, the 11th, took the road to Towcester, 8 miles off, exceeding rich reddish loam, on stone quarries and clay, with many fine pastures. You have many signs here of a stone country; stone-built cottages begin before Stratford, and at Towcester all the buildings are of stone. There are some open fields near Towcester, which let from 8 s. to 12 s. an acre; but the number is but few, for the country in general is all inclosed by act of parliament. It was under the course of

1. Fallow,
2. Wheat, 2 or 3 qrs. an acre.
3. Beans, 4 or 5 qrs.

After the inclosure they add a crop of barley or oats, from 4 to 7 qrs. after the beans: another course,

- | | |
|------------|------------|
| 1. Fallow, | 4. Barley, |
| 2. Wheat, | 5. Oats. |
| 3. Beans, | |

But the new fields are chiefly laid down to grass, which is mostly used in feeding dairies for butter, which goes regularly in waggons to London; they are up to 40 cows. The land is rich, so that an acre will more than summer a cow.

Rents by the inclosures are generally doubled.

On sandy lands they substitute turnips for the fallow

fallow, then take barley, and lay down for a few years with clover and rye-grass.

From Towcester to Daventry 20 s. an acre on an average. Farms they complain are laid together, and that they lose corn and sheep by the inclosures, but they get dairies in lieu of them. There is more inclosed arable by much than there was, for the high price of corn of late has occasioned many of the new ones which were laid to grass to be broken up again, and to this they attribute partly the present low price, wheat being now 4 s. 9d. and 4 s. 6d. a bushel; and barley 17 s. a qr.

Provisions, &c.

Bread 9 lb. for 10d.

Butter - 7d. and 7½d. a pound.

Coals 30 s. a ton.

Poor rates 2 s. and 2 s. 6d. in the pound, they have risen of late years.

Labour.

In harvest 36 s. and board

Hay 8 s. a week.

Winter 6 s. ditto.

The landlord of the Saracen's Head, at Towcester, who is not only a very civil host, but a large farmer and an intelligent man, gave me these particulars.

To Daventry the country is all rich, and lets on an average at 20 s. an acre, tithe free, for it is almost

almost all a line of new inclosures. About Pattishal, which from the road seems to be a very pretty village grouped in wood, with a distant prospect beyond it, their husbandry is,

1. Turnips eat off with sheep.
2. Barley, 5 to 8 quarters.
3. Clover and ray'grass, and trefoil for 3 years, mown for hay, and yields 2 or 3 ton at one cutting.
4. Oats, 5 to 8 qrs. sometimes wheat.

It has been inclosed 4 years, lets from 18 s. to 20 s. an acre, was at 8 s. or 10 s. The inclosures in this country have generally doubled the rents: Some of them are laid down to grass that were wet soils.

From Pattishal the road crosses a hill, every part of which commands the most beautiful prospects. The country is all in gentle declivities, which wave in various directions, the whole cut into inclosures, and shews a large extent of cultivation and verdure. But all the way from Stoney Stratford-hither, too many trees are stripped into may-poles. The country continued exceedingly beautiful as I advanced; about Datford, nothing can be more picturesque than some fields to the right where the varied slopes fringed with timber give much beauty to the richness of the soil. The whole line from Towcester to the dirty town of Daventry, is the finest part I have yet seen of Northamptonshire. It wants only a river.

Three

Three miles from Daventry came to Bramston, an inclosure only a year old, which I remember was so violently opposed by the rector, yet I find his living is doubled by it. The open field let at 6 s. to 10 s. an acre; but now it is (on lease) 20 s. to 30 s. Here the road crosses the Oxford navigation which is to join the Coventry cut. Laid at the Red Cow at Dunchurch, where I met with the civilest treatment.

June the 12th, took the Coventry road, passed a long avenue of firs and elms, planted to decorate the way; but in this climate trees in the road only spoil, by preventing its drying. The inclosures very rich land, let at 20 s. an acre. The course,

1. Turnips,
2. Barley, 5 or 6 qrs.
3. Clover and ray-grass 4 years:
4. Oats 6 qrs.
5. Wheat 3 or 4 qrs.

Wheat on an oat stubble, after three years lay, I should suppose must be very foul. They plough the lightest lands with 5 horses at length.

Five miles from Dunchurch, it continues the same rent, course, and crops: a little wheat is sown on fallow. They use much lime for their turnip lands; lay 17 qrs. an acre at 2 s. 6d. a qr: I remarked many excellently built farm houses and offices, which every where give a country a rich and comfortable appearance.

Cross the river, upon the banks of which is a noble range of meadows let at 30 s. an acre.

Breakfast at Coventry, and upon making enquiries concerning their manufactures, find that they consist not only of the ribbons but stuffs; the trade is very brisk at present. Men earn 7 s. or 8 s. a week by weaving, and women 5 s. I saw more women at this work than men. In the Birmingham road, at Allesley, the country exceedingly rich, a fine deep loam on a sand-stone quarry. It is mostly pasture for feeding and dairying, lets from 18 s. to 25 s. an acre; not much arable land; what there is, is in

1. Turnips,
2. Barley, 5 qrs.
3. Clover and ray-grass, 3 or 4 years.
4. Oats or beans, sometimes pease, but the grub eats the pease on lays, when 3 inches high, but never beans or oats*.
5. Wheat 3 qrs.

This rich feeding land improves towards Banbury, all the way thither is fine land, and applied much of it to fattening oxen; here they fat cows chiefly. Dairies rise to 20 or 30. About Coventry are some breeders famous both for cows and sheep. Cows sell at 10 l. and 15 l. a piece, good ones, and they fat up to 20 l. They have also a very fine large breed of sheep; they keep the lambs for fattening, kill from 2 to 5 years old; wethers come from 30 l. to 40 l. a score.

At

* Oats are eaten by the red-worm. What they mean by this is not clear.

At Bicknel their course is,

1. Turnips fed off by fat sheep and beasts.
2. Barley, 4 qrs.
3. Wheat, 4 qrs.
4. Oats, 4 qrs.
5. Clover and ray-grafs 4 or 5 years, and then break up for turnips again.

One farmer, Mr. Swinburn, who is reckoned a very good one, has

1. Turnips,
2. Barley,
3. Clover and ray-grafs 3 years.

Dairies rise to 20 cows; they rear many calves, save those calved at candlemas or lady-day, and feed them by hand with milk till june, when they turn them to grafs. Sometimes they let two have a cow at grafs all summer.

Lambs for stores sell up to 20s. each, 3 or 4 sheep to the tod in clipping, yield long wool for jerseys. No folding.

The cows, though famous for breed and fattening, are here as in all the fine breeding countries, nothing for the pail, two cows go to a pail of 3 gallons. And, calf included, they do not pay above 5 l. a year.

Provisions:

Bread, 4½ lb. for	-	6d.
Butter,	-	8d.
Potatoes 1 s. 6d. to 2 s. 6d. a bushel		
Mutton,	-	4d.
Beef,	-	3½d and 3¼d.
	L 2	Veal,

Veal,	-	-	3d. and 3½d.
Pork,	-	-	3½d. and 4d.

Labour.

In harvest 1 s. a day.

Hay ditto.

Winter 8d. and board, and beer with all.

Passed Lord Aylsford's, upon rising a hill to a gothic farm house of his, the country around is very fine, beautifully rich and wooded. Cross an extensive and poor common, and come into a sandy tract which holds almost to Birmingham; lets from 15 s. to 25 s. an acre.

Got into that region of Vulcans by six o'clock, and immediately sent a card to Mr. Samuel Garbet, who had been so kind, on the publication of my *Six Months Tour*, to invite me there, promising to give me ample intelligence concerning the manufactures; but unfortunately he was not in town. I was, however, informed, that the trade of the place in general never was brisker than at present; that in every branch, except nails, they had more orders than could be executed. I was here in 1768, eight years ago, and found since that time the place much increased in size.

June 13th leave it. Passed Mr. Bolton's great works, and come to West Bromich, but the road for 5 or 6 miles is one continued village of nailers, who complained to me that their trade was failing, owing to the disputes with America; but their hands when idle took to other branches, all the
youngsters

youngsters going to Birmingham. These nailers earn from 7 s. to 10 s. a week, according to their quickness.

Agriculture here is carried on so connectedly with manufactures, that it is subservient to them; however, there are some farms here, that let from 15 s. to 20 s. and 25 s. per acre. The course,

1. Turnips,
2. Barley, 4 or 5 qrs.
3. Clover and ray-grass 4 years.
4. Oats 5 to 10 qrs. or wheat $2\frac{1}{2}$ or 3 qrs.

Also, 1. Fallow,
2. Wheat,
3. Barley or oats.

They lime for turnips, laying a waggon load of 8 or 10 qr. per acre. Potatoes have been much planted, and yield 6 or 7 bushels per rod, but they were so cheap last year ($2\frac{1}{2}$ d. to 4d. a peck) that not near so many are now planted.

Provisions.

Bread 9lb. for	-	1 s.
Butter	- -	7d. and $7\frac{1}{2}$ d.
Mutton	- -	4d.
Beef	- -	4d.
Veal	- - -	$3\frac{1}{2}$ d. $2\frac{1}{2}$ d. 4d,
Pork	- -	$3\frac{1}{2}$ d.
Coals	6d. a horse load.	

Labour.

All the year round 1 s. 6d. a day.

About Wednesbury, a place in which the same fabrics as at Birmingham are carried on, the whole country smoaks with coal-pits, forges, furnaces, &c. towns come upon the neck of one another, and large ones too. Darlston, where gun-locks are made. Bilston, a considerable place, and quite to Wolverhampton from Birmingham, I saw not one farm-house, nothing that looked like the residence of a mere farmer. All is from Westbury agriculture for convenience, and accordingly land lets the whole way from 40 s. to 4 l. an acre: the worst, and some is indifferent, at 35 s. to 45 s.

Breakfasted at Wolverhampton; there I find in general the manufacture is just the same as at Birmingham; and goes on as spirited as ever known, except in nails and axes, which being the peculiar American demand, suffers from the civil war there.

At Tibnet, about a mile and half from Wolverhampton, the road crosses the navigable canal from Kidderminster on the Severne to the Trent; this is the highest spot on the whole line, as the water runs both ways.

Near Sir John Wrottesley's, the country varies much, from 16 s. to 20s. an acre, and some to 40s. much of it is grass land. The course is,

1. Turnips,
2. Barley,
3. Clover 3 or 4 years,
4. oats.

This

This neighbourhood is an amazing change from Wolverhampton. From Birmingham thither, it is all alive with manufacturing towns and villages, but here it is, comparatively speaking, as retired as the Ohio : no appearance of manufactures, and hardly any houses. Passing Sir John's, the road leads to the brow of a hill which commands a most noble extent of fertile plain, bounded on the left by the Clee hills, and in front the Wreekin. At the bottom of the hill renewing my enquiries, I found their system was,

1. Turnips manured for with one load an acre of lime, and fed with cattle ; but many draw the crop and eat them on a lay.
2. Barley 20 to 30 bushels.
3. Wheat dunged for, produce 20 to 30 bush.
4. Barley,
5. Clover, or clover and ray-grass,
6. Wheat.

What would a norfolk farmer say to such a course ? Rents rise from 7 s. to 15 s. an acre.

Labour.

In harvest 5 s. a week and board.

In hay the same.

The rest of the year 4 s. and ditto.

Provisions.

Bread 1d. a lb. household.

Butter - - - 6d. to 7d.

L 4

Cheese

Cheese,	-	-	3 ¹ d.
Mutton	-	-	3 ¹ d.
Veal	-	-	3d. and 3 ¹ d.
Beef	-	-	3 ¹ d.
Potatoes,	-	-	1 s. a strike.

Almost all the cottages have a piece of hemp, with the produce of which they spin and weave their linen. A practice which cannot be too much commended. Lord Pigot's park and woods on the side of a hill to the left of the road, have a fine appearance from it. All the way from Wolverhampton, I have remarked, that the sands lie all on stone quarries. Saw many very fine cows; the dairies are not large, but the hogs are numerous. The produce of a cow rises to 6 l. and 8 l.

The road passes through a quarry, and turning, come suddenly upon a pretty sequestered cool scene, a bridge thrown over a small river under the shade of two limes, with a fine back ground of oak; came into a tract cultivated in a very different manner from any of the preceding. It is a fine sandy soil for two or three miles before Shifnel.

1. Turnips limed for, but not always hoed.

2. Barley 5 or 6 qrs.

3. Clover mown and fed.

4. Wheat dunged for, yields 20 to 30 bushels.

Some rye-grass. Rents 15 s. an acre.

I believe I forgot to remark, that I first saw double ploughs 5 miles before Birmingham, where they are very common, and reckoned a great saving,

ing, the price 5 l. 5 s. compleat. I met with them again at Shiffnell.

Dined there, and having recommendations from Mr. Harries, of Cruckton, into the neighbourhood of Colebrooke Dale, famous for its iron works. Crossed the Severn at the ferry at Lincoln Hill, in the midst of a most noble scenery of exceeding bold mountainous tracts, with that river rolling at the bottom. The opposite shore is one immense steep of hanging wood, which has the finest effect imaginable. Mounted through that wood, thickly scattered with cottages, the inhabitants busily employed in the vast works of various kinds carried on in the neighbourhood. One circumstance I remarked which gave me much pleasure. There was not a single cottage in which a fine hog did not seem to make a part of every family; not a door without a stone trough with the pig eating his supper, in company with the children at the same business playful about the threshold. It was a sight which shewed that cheerfulness and plenty crowned the board of the humble but happy inhabitants of this romantic spot.

Went to the house of Mr. Serjeant Roden, who, by his landlord's direction, Mr. Harries, gave me the following particulars of the husbandry at Benthall.

Farms in general from 100 to 200 acres on a clay, loam, or gravelly soil, that lets from 10 s. to 15 s. an acre. The courses are,

1. Fal-

- | | |
|---------------------------|-------------|
| 1. Fallow, | 1. Turnips, |
| 2. Wheat, | 2. Barley, |
| 3. Barley or oats | 3. Clover, |
| 4. Clover 1 or 2 years, | 4. Wheat, |
| 5. Wheat, oats, or pease, | 5. Barley, |
| | 6. Pease. |

Of wheat they do not sow quite 2 bushels, and reckon 20 bushels a good crop. For barley they plough twice or thrice, sow $3\frac{1}{4}$ and get from 20 to 27. For oats they stir but once, vary the quantity of seed according to the sort, sow of black $3\frac{1}{2}$, red 3, and white four; like the black best. The produce 25. For pease they prefer a lay if the land is dry, thinking very justly that they do on nothing else so well; plough but once for them, sow 3 bushels and get 22. Turnips are coming in among them, they plough four times, dung them, and lime 1 or 2 load an acre: they begin to hoe, but it is only little: use them for all sorts of cattle. Their clover they graze in the spring, and then mow it for hay. Hemp is almost universal with both farmers and cottagers, they dress and spin it, and it is wove into linen in the country. Potatoes in large spots are found to every house, they hoe and weed them, and get $2\frac{1}{2}$ to 3 bushels to a rod.

Copse-wood is in large quantities, and all in the landlord's hands; cut at 21 years growth, when they are worth 15 l. or 16 l. an acre; the oak poles they bark, and that young bark sells at 20 s. a ton

a ton more than old; when barked they are sold to the coal-pits to support the roofs as they work.

No sheep folded, but lime is much used; foot they use a little for wheat crops in april at 6d. a bushel. In their dairies they reckon an acre will not summer-feed a cow; they give $1\frac{1}{2}$ to 2 gallons of milk at a meal; keep 2 breeding sows to 10 cows, and reckon candlemas the best time for weaning calves. They know of no method of weaning without milk, but have several methods to make a little milk go a good way; for instance, to a pail of water they put a pint of lintseed, which they boil, so that when cold it shall be a jelly, they then warm it for use, and mix it with skim-milk half and half; to this they put them at a fortnight old, and keep them upon it till they turn out to grafs. They also mix milk and water and pea-flour for the same purpose.

Their bacon hogs fat to 16 and 20 score; one has been known of 37 score. Sheep are kept but in small parcels; to 300 acres 100 may be found. Oxen for ploughing are commonly used, especially when more than one team is kept, they then like to have one of oxen, 8 oxen and 6 horses to a farm of 300 acres: they use 6 oxen or 4 horses in a plough, and do an acre a day. They put their oxen to work at three year old, and work them till they are five.

Cutting straw into chaff is very much practiced.

400 l. They reckon necessary to stock a farm of 100 l. a year.

Land sells at 30 years purchase. The land tax at 4 s. nominal is 1 s. and tithes 1 s. in pound : poor rates from 2 s. to 4 s. no rise in them. All the poor drink tea.

Very few leaves given.

Labour, &c.

In harvest 6 s. a week and board.

Hay time and winter 4 s. and do.

When no board 1 s. 4d. a day.

First man's wages 7 l. to 8 l.

Next do. 3 l. 10 s.

Lads 40 s.

Dairy maid 3 l.

Women all the year 6d. a day and beer.

The rise of labour has been from 1 s. to 1 s. 4d. in ten years.

Provisions.

Cheese 3d. per lb.

Butter 6d.

Beef 3½d.

Mutton 4d.

Veal 3½d.

Pork 4d.

Bacon 6d. 7d.

Milk ½d. a pint.

Potatoes 4d. 6d. a peck.

Candles 6½d.

Soap - 6½d.

Labourers house rent

20 s. to 25 s.

Their firing, coals 3d. Ct.

Building.

Building.

Bricks 1 rs. 6d. per 1000 at the kiln.

Tiles 16 s.

Oak 40 s. to 50 s. a ton.

Ash 42 s. do.

A carpenter 20d. to 2 s. a day.

Mason 20d.

Thatcher 1 s. and board.

A Farm.

320 Acres,	35 Barley,
160 Arable,	40 Oats,
160 Grass,	20 Pease,
180 l. Rent,	10 Turneps,
8 Horses,	20 Clover,
6 Oxen,	10 Fallow,
14 Cows,	4 Men,
24 Young cattle,	2 Boys,
80 Sheep,	1 Labourer,
35 Acres wheat,	2 Maids,

This neighbourhood is uncommonly full of manufactures, among which the principal are the potteries, pipe makers, colliers and iron works. In the potteries, which are only for coarse mugs, pots, &c. the men earn 8 s. to 10 s. a week. Boys 3 d. to 9 d. a day, and girls 3 d. and 4 d. In the pipe manufactory the men earn 10 s. 6 d. a weeks,

week, the women 3 s. and children 2 s. or 3 s. there are 3 or 400 hands employed in it. Both these fabricks are exceedingly flourishing; great numbers of blue tile are also burnt here, and sent by the Severn to a distance.

Walked by Benthall hall to a steep over the river called Benthall Edge. It is a very fine woody bank which rises very steep from the Severn; you look down an immense declivity on a beautiful winding valley two miles over, cut into rich enclosures, and broken by tufts of wood, the steep on which you stand waving from the right line exhibits the noblest slopes of hanging wood; in one place forming a fine round hill covered with wood, called Tick Wood. In front the Wreekin, three miles off, its sides cut by inclosures three parts up, and along the vale the river meanders to Shrewsbury. Further to the right at a spot called Agar's Spout, a most romantic view down a steep slope of wood with the Severn coming in a very bold reach full against it, winding away to the town in a most bending fanciful course.

Crossing the ferry where Mr. Darby has undertaken to build a bridge of one arch of 120 feet, of cast iron †, I passed to his works up Colebrook Dale. The waggon ways that lead down to the river instead of wood are laid with cast iron; and those made for the lime stone waggons on the steep hills

† Since executed.

hills are so contrived that the loaded waggon winds up the empty one on a different road. Pass his new flitting mills, which are not finished, but the immense wheels 20 feet diameter of cast iron were there, and appear wonderful. Viewed the furnaces, forges, &c. with the vast bellows that give those roaring blasts, which make the whole edifice horridly sublime. These works are supposed to be the greatest in England. The whole process is here gone through from digging the iron stone to making it into cannons, pipes, cylinders, &c. &c. All the iron used is raised in the neighbouring hills, and the coal dug likewise, which is char'd, an invention which must have been of the greatest consequence after the quantity of cord wood in the kingdom declined. Mr. Darby in his works employs near 1000 people, including colliers. There are 5 furnaces in the Dale, and 2 of them are his: the next considerable proprietor is Mr. Wilkinson, whose machine for boring cannon from the solid cast is at Posenail, and very curious.

The colliers earn 20d. a day, those who get lime stone 1 s. 4d. the founderers 8 s. to 10 s. 6d. a week. Boys of 14 earn 1 s. a day at drawing coal baskets in the pits.

The coal mines are from 20 yards to 120 deep, and the coal in general dips to the south east: in sinking the pits they generally find the following strata.

1. Brick

1. Brick clay 3 feet deep
2. Potters do. 15 feet
3. Smuts an imperfect coaly substance 1 foot
4. Blue bat, a hard clay 3 or 4
5. Top and sand rock 6 or 8
6. Bottom coal 4
7. White slip, potters clay 3
8. Best coal 3
9. Brick clay 18
10. Clod coal $2\frac{1}{2}$
11. Clay 12
12. Flint coal 4
13. Iron stone 3

There may be about 1000 acres of coal on the Benthall side of the river, and 2000 on the Dale side.

These iron works are in a very flourishing situation, rising rather than the contrary.

Colebrook Dale itself is a very romantic spot, it is a winding glen between two immense hills which break into various forms, and all thickly covered with wood, forming the most beautiful sheets of hanging wood. Indeed too beautiful to be much in unison with that variety of horrors art has spread at the bottom: the noise of the forges, mills, &c. with all their vast machinery, the flames bursting from the furnaces with the burning of the coal and the smook of the lime kilns, are altogether sublime, and would unite well with craggy and bare rocks, like St. Vincent's at Bristol.

Returning

Returning to Shifnel, I took the road to Shrewsbury towards Ketley, I found that land let in general from 10 s. to 20 s. an acre. Passed many collieries and iron works all the way. About Watling-street whole farms through let at 20 s. an acre, and some to 40 s. From the road you have a very fine view of the Wreckin, it rears its venerable bare head between two great woody mountains. Within 2 or 3 miles of Shrewsbury farms run at 15 s. and 20 s. meadows 30 s. the soil is a dry gravel, upon which they lime for turnips, but do not hoe them; feed the crops on the land with sheep, &c:

The course,

1. Turnips
2. Barley
3. Wheat 18 to 25 bushels
4. Barley
5. Clover 3 years
6. Pease

Farms are from 50 l. to 150 l.

They see where the lime is laid in the crops to an inch.

Colonel Hill, in this neighbourhood, has taken much pains to introduce hoeing, and does some every year.

Dined at Shrewsbury, and walked about the town. It is large and very well situated, the stone bridge erected by a voluntary subscription, which raised above 10,000 l. is an equal advantage and credit to the town and county; another very handsome one of the same materials is erecting at the county

expenſe, 3 miles before Shrewſbury in the London road.

Went to Cruckton, the ſeat of the Reverend Mr. Harries, to whom I am obliged for the following account of the huſbandry of that neighbourhood. The name of the pariſh is Pontefbury. Farms are in general ſmall, from 30 l. to 100 l. a few to 200 l. The ſoil a rich, ſtrong, gravelly loam, dry and ſound, lets from 14 s. to 15 s. on an average.

The whole county through, excluſive of waſtes, about 14 s. an acre. Waſtes are Stiperſtone Hills, Longment, Clee Hills, Titerſtone, Brown Clee, Wreekin and Hatton Highneath. Theſe the moſt conſiderable waſtes, and as they are, would let for 2 s. an acre. Courſes,

1. Fallow lime or dung invariably, 3 waggon load to 2 acres, at 11 s. 3 d. a load at kiln, and go 4 to 6 miles.
2. Wheat or *monker*, that is maſlin, ſow $2\frac{1}{2}$ to 3 buſhels and produce 20 ($9\frac{1}{2}$ gallons) the wheat ſold at 75 lb. a ſtrike.
3. Barley, ſow 4 buſhels and get 28.
4. Oats ſow $4\frac{1}{2}$ ſtrike, and get 30.
5. Clover fed generally with ſheep pigs and horſes, for two years.
6. Peaſe, ſow 3 ſtrike, and get 22.
7. Wheat manured, then barley, and laid down again, &c. fallow not regular in the courſes.

Another,

1. Clover for 2 years.
2. Manured for wheat.

3. Barley

3. Barley or oats laid down again to
4. Clover 2 years
5. Pease
6. Wheat
7. Barley or oats laid down again.

The farmers sow some tares for seed, instead of pease; never for hay or soiling. No sainfoine. Most farmers, and likewise cottagers, have spots of hemp; go through the whole management, and spin it into coarse linen for their own use. All plant potatoes for home use, and have of late years increased much.

Copse generally kept in landlords hands, cut at 22 or 24 years growth. About Ludlow at 16 or 17 for cord wood, worth at 24 years 18 l. an acre; purchaser pays tythe. Cut the timber at every other fall, at 50 years growth, called black poles for laths and hurdles, and worth 3 s. or 4 s. each; but sold with the copse wood.

Many cows of the Shropshire breed, which is between Lancashire and their own. An acre and half the summer food of one: 8 lb. of butter a week in height of the season, reckoned a large produce, they give 2 or 3 gallons of milk at a meal, which is uncommon for such large fine cattle. Mr. Harries has had 16 quarts a meal, they make from 2 to 3 Ct. of cheese at 26 s. to 30s. besides butter, from each cow.

2 $\frac{1}{2}$ Ct. at 28 s.	-	-	£. 3	10	0
Butter,	-	-	0	10	0
Calf,	-	-	1	10	0
Pigs,	-	-	1	10	0
			<hr/>		
			7	0	0
			<hr/>		

Produce of 8 cows Mr. Harries's.

5 Cheefes a week,	-	£. 1	3	0
20 lb. Butter	-	0	12	0
		<hr/>		
		1	15	0
		<hr/>		

For 20 weeks,	-	£. 35	0	0
8 Calves,	-	8	0	0
3 sows, 6 litters, 48 pigs at 7 s.		16	16	0
		<hr/>		
		59	16	0
		<hr/>		

Which is per cow 7 9 0

They feed in winter when dry till just before calving, in day time in the fields poaching, but Mr. Harries keeps them in a yard. Take the calves for rearing at 1 month old: rear them upon milk and water and oatmeal; rear many oxen, but sell them lean. Value of a fat cow's hide 3 $\frac{1}{2}$ d. a lb.; 80 lb. a good hide; cheaper 20 years ago. Fat hogs to 16 score common, sell them at Shrewsbury by live weight at 4d. per lb. lean price of stores 50 s. to 3 l.

Flocks

Flocks of sheep are small; buy ewes in october, year in february, and turn them on clover, selling the lambs fat, and then the ewes; buy in at 10 s. sell lamb 7 s. 6 d. ewe 13 s.

Plough with horses 4 or 5 at length, and do an acre; keep 8 horses to 100 acres tillage. The year's expence of a horse 10 l. cut much straw into chaff. Did use many oxen some years ago; but now scarce any. Break stubbles after wheat sowing. Swing ploughs used, and the coulter fixed to the shares. Hire of a team of 5 horses, a waggon, and one man, 12 s.

To hire a farm of 100 l. a year.

5 Horses at 15 l.	-	-	£. 75	0	0
12 Cows at 7 l.	-	-	84	0	0
8 Young cattle 3 l.	-	-	24	0	0
60 Sheep at 10 s.	-	-	30	0	0
2 Sows at 50 s.	-	-	5	0	0
1 Waggon,	-	-	25	0	0
2 Tunbrils 10 l.	-	-	20	0	0
1 Harvest cart,	-	-	7	0	0
2 Ploughs,	-	-	3	0	0
2 Harrows,	-	-	3	0	0
1 Roller,	-	-	1	0	0
Harness,	-	-	5	0	0
Sundries,	-	-	15	0	0
Furniture,	-	-	50	0	0
Tythe,	-	-	12	0	0
Rates, &c.	-	-	5	0	0
Carried over			364	0	0
M 3			Brought		

Brought over	-	£. 364	0	0
Housekeeping,	-	25	0	0
2 Men and 1 boy,	-	19	0	0
2 Maids,	-	6	0	0
1 Labourer,	-	18	0	0
60 Acres seed 12 s.	-	36	0	0
		<hr/>		
		468	0	0
		<hr/>		

Land sells at 30 years purchase, in 10 years risen much, now at a stand. Land-tax at 4 s. not more than 1 s. the county through. Tythes not much gathered ; computed 2s. to 3s. in the pound. Poor rates, 1 s. to 1 s. 6 d. doubled in 10 years. Tea general, leases 7 s. to 14s. or 21 s. many, but going out.

Labour.

In harvest 1 s. 4 d. 1 s. 6 d. and board

— Hay 1s. 2d. 1 s. 4d. and beer.

— Winter 1 s.

Man's wages 8 l.

Lad 3 l.

Maid 3 l. to 3 l. 10 s.

Woman at hay 6 d. and beer.

Rise of labour, none for 6 years, but in 15 years ½ d

Provision.

Cheese 3 d.

Mutton 4 d.

Butter 6 d. 9 d.

Veal 4 d.

Beef 4 d.

Pork 4 d.

Bacon

Bacon 6 d. 7 d. Firing, seldom buy more
 Potatoes 1s. 6d. 2s. strike, than 12 s. for 1 stack
 Labourer's house rent 4os. coal. Tools 5 s.

Building.

Bricks 15 s. formerly 9 s.
 Tiles 20 s.
 Oak 40 s. a ton, very little advanced.
 Ash do.
 Poplar 30 s:
 Carpenter 1 s. 6 d. 1 s. 8 d.
 Mason do.
 Building a cottage 25 l.

A Farm.

300 Acres,	8 Horses,
124 Grass,	16 Cows,
176 Arable,	4 Fattening,
33 Wheat,	30 Young,
50 Barley,	100 Sheep,
8 Oats,	3 Men,
17 Pease,	2 Maids,
60 Clover,	2 Labourers.
8 Fallow,	

No chopping stubbles. On clover lays of a second year at midsummer they put on the usual quantity of lime, and in october sow the wheat upon one ploughing, and sometimes put the lime upon pease when 3 or 4 inches high, to keep insects from

the pease ; and better for wheat. The farmers in general have a great opinion of lime.

All the farmers take every opportunity of throwing the water over their lands wherever they can, and find the greatest advantage from it, not only in point of quantity, but quality of grass also, especially on warm, sound, gravelly, soils. Some clay bottoms done so ; the advantage great.

Mr. H. begins in november, and waters till the middle of march, mows 2 ton an acre, but before they were done not one : dry all march ; he has observed then the watering to produce rushes on the clays ; feed in april, and afterwards a gentle watering, and then mow by the 10th of july. The water is very rich, water the upper lands middle of november till may, but will not bear feeding in spring. Never turn into them in the spring. Has tried feeding sheep in the watered meadows in april, but rotted them :

Mr. Harries mentioning a meadow he waters, upon which cattle are remarkably fond of feeding, and get fat in a very short time ; I went to examine the herbage and found the major part to be narrow leaved plantain, Achillea, white clover, red perennial clover, meadow foxtail, and tare thime, besides some other common grasses, a strong instance that the recommendations I have at various times given for laying land to grass are just.

Mr. Harries is making very great improvements at Crufton ; besides almost new building the house, he has laid out the grounds about it in a very agreeable

ble manner ; the garden front commands a most pleasing prospect of a rich vale bounded by distant mountains, and nearer hills partly cultivated ; one rises in the center of a peculiar form, making a very picturesque appearance.

June the 15th, leaving Crufton, took the road to Shrewsbury by *the Bank*, Mr. Badders, who has made several considerable improvements in husbandry, particularly in bringing a large farm of 400 acres into a very rich condition, by ample manuring. He has for four years regularly had a small field of cabbages for the purpose of stall-feeding cows. I was attentive to what he mentioned upon this subject, as so many persons have gone out of cabbages, from thinking they did not answer : Mr. Badder is of a very different opinion ; and for stall-feeding, thinks they much exceed turnips. That an acre will fatten one beast in four more than turnips, and all in two thirds of the time ; and for the grazier, another circumstance of consequence is, that cabbages have a remarkable effect in laying on the fat on the graziers points. From experience, Mr. Badder intends always, as the most advantageous method, to go over his summer-fattening cattle about half fat, and draw off such as should in october be put to the stalls when the cabbages are in full perfection, by which means they go much farther, and will prove highly profitable. He has often fed cows with them, and if the decayed leaves are taken off, they give the butter no ill taste.

From

From hence went to Petton, the seat of Edward Maurice, Esq; who was so kind as to procure me, the following particulars.

The size of farms generally from 50 l. to 200 l. a year, very few rising to 300 l. The soil in general clay, some gravel and light loam, lets on an average at 15 s. From hence to Chester 12 s. to Shrewsbury 15 s. 6 d. to Oswestry 15 s. and the whole county 15 s.

1. Fallow,
2. Wheat, sow 2½ strike at 9½ gallons and get 20.
3. Barley, sow 3 strike, get 30.
4. Oats, sow 4 strike, get 40.
5. Clover and ray-grass 3 or 4 years, mow the 1st year and then feed.
6. Oats.

Very few pease from the coldness of the lands, but about Preston, Brockhurst, &c. where the soil is sand, they introduce them instead of the last crop of oats, and sow wheat upon the stubble, which in Shropshire they call the *brush*; they yield 40 strike an acre generally, sometimes 50; upon the same soil they also sow buck-wheat for ploughing under.

Every cottager and every farmer has hemp; a farmer generally 2 acres, and a cottager all he can spare from potatoes and beans; they dress, spin, and weave it into cloth in the country. Potatoes are much planted, besides gardens they put them on their headlands, dung much for them. Crops about 3 strike per perch.

Copfes

Copfes all in hand, they cut at 10 years growth, the quantity not great.

As to manuring, lime is the great resource, they lay a waggon load an acre, at 12 s. fourteen miles off; lay it on the fallow for wheat; also lime the pease on lays after they are up, to prevent the slugs coming. They have a great opinion of it, it is rock lime, they can see to an inch where it is laid: but it does not answer so well on strong wet land as on light. Spread it every four years. Their dung they lay on the wheat fallows.

Marle is used, but not so much as it was, it is left off in favour of lime, but it is still common about Preston.

Going to Shrewsbury for dung, &c. is coming in, and they buy whatever they can at 5 s. a cart load. No draining, except by gentlemen, who most of them do much.

Dairies are large, up to 35 cows, $1\frac{1}{2}$ acre grafs for their summer-food; in winter they are fed on barley-straw, but before and after calving, hay. The breed is in general the common Shropshire, with long horns, Staffordshire ones they like, but hold all cows without horns in utter contempt. Make both butter and cheese; they are excellent milkers, giving in general 2 gallons at a meal. Mr. Maurice has had a cow he bought in Holdernefs, which gave 17 quarts and $\frac{1}{2}$ a pint of milk at a meal; the produce of one they reckon about 5l. keep many swine to their cows: breeding sows for stores, which they sell lean. To 20 cows they keep
5 or

5 or 6 sows, and all the pigs bred, selling at a year old, at 35 s. each. Let the sows pig when they will they rear all; wean at 10 weeks old on corn and milk; sucking pigs at 10 weeks, sold at 10s. 6 d. each. Some farmers turn their hogs into clover.

Rear many calves, three-fourths of all they have: wean at 3 weeks old, give them milk and whey thickened with wheat-flour till midsummer.

Sheep are kept in small parcels only: bought in every year, and sold fat. Buy year olds at 7 s. to 9 s. sell lambs at 7 s. 6 d. and the ewe at 9 s. or 10 s. clip 2 or 3 lb. of wool.

Plough with horses, 4 in a plough at length, keep 7 to 100 acres of arable. Do 1 acre or $1\frac{1}{2}$ in a day: but with a double plough, which are very common, do double work, 5 do more than 8 in two single ones. Depth 3 or 4 inches: the price 5s. an acre. Lay their fields in 6 feet lands. Cut much straw into chaff. Very few draught oxen. Hire of a team a day 10 s. 6 d. In flocking farms a man should have for 100 l. a year, 400 l.

Land sells at 33 years purchase, has risen very much in 10 years. Land tax at 4 s. is 1 s. 5 d. tythes generally compounded 2 s. in the pound, but some gathered. Poor rates in Ellefmere 1 s. 1 d: in Petton 4 d. Tea general. Leases are common on lives, also on terms.

Labour.

In Harvest 1 s. 6 d. and beer.

— Hay do.

Winter

In Winter	.	-	10 d.
First man	-	-	7 l. 8 l.
A lad	-	.	3 l. 10 s.
Maids	-	-	3 l.
The price of labour in 20 years risen half.			

Provisions.

Cheefe	3 d.	Pork	4 d.
Butter	7 d. 9 d.	Bacon	6 d.
Beef	4 d.	Potatoes from	1 s. to 4 s.
Mutton	4 d.	House rent	20 s. to 4 l.
Veal	3 d.	Firing—steal it.	

Building.

Bricks	-	-	14 s.
Tiles	-	-	15 s.
Oak timber 1 s. 3d. a foot, 20 years ago much cheaper.			

A Farm.

355 Acres.	30 Fallow.
177 Grass.	8 Horses.
178 Arable.	20 Cows.
160 l. Rent.	25 Young cattle.
30 Wheat.	60 Sheep.
20 Barley.	3 Men.
20 Oats.	1 Labourer.
40 Clover.	2 Maids.

Mr. Maurice has improved in several circumstances upon the preceding husbandry. His course is,

1. Turnips,
2. Barley 35 strike,
3. Clover, 2 years: mow the 1st: feed the 2d.
4. Wheat 18 to 20:

Draw part of the turnips, and eat the remainder on the land with sheep and young cattle. Upon his clays,

1. Oats on a lay.
2. Beans.
3. Tares.
4. Wheat.

The farmers do not cultivate turnips, but he hoes twice, and sometimes thrice, and finds the benefit exceedingly great: a few have, from seeing the greatness of the crops, practised it.

Potatoes he has planted in large quantities, particularly for hogs, and all sorts of stock, and finds that nothing is better for them.

Soot he buys at Shrewsbury for manuring his grass lands, 28 strike an acre: the effect is very great. Large crops of hay after it; kills the rushes and brings a fine herbage.

In respect of cattle, Mr. Maurice has been uncommonly attentive: he began with the common Shropshire, which he changed for the Holderness, on account of the milking. But found them very difficult to feed, very tender, very thin hide of little value, which he thinks the reason of their tenderness;

dernefs; their milk is not rich, for which reasons he left them off. He then bought the Leicestershire sort, to which he has adhered; improved by a cross of the Lancashire, and has by that means got a breed, in which the object of grazing is united with good milking.

He has many cows which give three gallons at a meal, bred in the above manner; also good ones of the Alderney breed, which he approves much for a dairy.

Many bulls, which, in order to promote the breeding system, he lets out at from 3 guineas to 12 a season. That Mr. Maurice has carried the attention to cattle to a great extent, will appear from the following state of his farm.

450 Acres in all,	11 Fattening beasts,
300 Grass,	30 Young cattle,
150 Arable,	25 Calves,
400 l. Rent,	40 Horses,
8 Bulls,	60 Hogs.
35 Cows,	

He has built sheds of brick and slate, under which he ties up above 60 head all winter through, feeding them with straw and turnips.

He every year keeps 30 acres of after-grass from michaelmas to february for his cows that have then calved, and finds very great advantage from it. And in lieu of grass in april, he sows turnips on stubbles on one ploughing, $3\frac{1}{2}$ lb. seed to an acre, of the white dutch turnip. He has now in
milk

milk 33 cows, by which he makes every week 7 cheefes, at 45 lb. each on an average, and for one quarter of a year 4 cheefes, and 30 lb. butter a week. The cheefe 28 s. and the butter 7d. To the dairy 8 fows of an excellent breed, between the Chinese black and a Warwickshire boar, of which the average litter is about seven, and two in a year. A large hog for bacon will eat 20 strike of pease in fattening.

7 Cheefes at 45 lb. for 13 weeks,			
also 13 weeks at 4 cheefes,			
53 Ct. at 28 s.	-	£. 74	0 0
26 Weeks butter at 30 lb. 780, at 7d.		22	15 0
30 calves at 2 l. 2 s.	-	63	0 0
		<hr/>	
		159	15 0
		<hr/>	

For the hogs Mr. Maurice has inclosed a paled yard, with sties and troughs, &c. out of which his hogs never go.

He keeps a flock of Leicester ewes, and thinks, from experience, that they ought not to be put to ram till the end of october, for he has observed, that lambs yeaned in march will not be smaller the beginning of june than those which fell at christmas. It was natural for me to enquire into the food after lambing, but Mr. Maurice made the observation after he became a turnip farmer.

June 16th, took the Ellefmere road, which leads through a very fine variegated country, and an exceeding fine water, of more than 100 acres,
called

called the *White Mere*. The lands that surround it are rich, and rise from it in the most beautiful manner. The coast various, part of it little hills, which rise one beyond another, prettily tufted with wood; in others, thick hedges that bound the water; a hill partly cultivated and part grass, with gentle slopes of corn, and the Wreckin at a distance.

Before I came to Orton, the country becomes a perfect picture, the road winds round the edge of a hill that half encompasses a most beautiful vale of the finest verdure, well wooded, with a river which is seen but in one or two spots, as if shewing itself with reluctance; the declivity from the road so steep, and of such a depth, that you look over the tops of many considerable trees, and see the vale through their branches.

Near Orton had another view, different, but very pleasing, the road winds on the brink of a precipice, at the bottom of which is spread forth the same vale, cut into innumerable inclosures, the river giving a bold curve, and the whole bounded by mountains.

Called at Mr. Fletcher's, at Gwern, to whom a letter from Mr. Maurice introduced me, and had the satisfaction of gaining by that means some particulars concerning the common husbandry, and a short account of some very meritorious pursuits which Mr. Fletcher had himself made in agriculture.

Orton is situated on a rich high land between two vales. The soil various, clay, loam, gravel,
 VOL. IV. N° 20. N fandy

fandy loam, &c. The poorest is the clay, which does not let for more than 8 s. an acre ; but the others to 15 s. and 20 s. and the low meadows in the vale up to 3 l. 4 l. and even 5 l. an acre ; but the highest yields that rent merely from an uncommon custom of letting them for a single year only, by auction, and are hired by persons from Chester and other towns for hay, which is very scarce with them. Farms rise usually from 50 l. to 100 l. a few larger.

They have several courses, but that which seems most general is,

1. Fallow, but not universal.
2. Wheat, sow $2\frac{1}{2}$ bushels, and get from 16 to 25 bushels.
3. Barley, sow $4\frac{1}{2}$ bushels and get 4 or 5 qrs.
4. Clover 2 or 3 years.
5. Oats or pease.

They lay lime and marle on their fallows, and spread dung on their grass lands.

Mr. Fletcher's own husbandry is much better worth attention than that of these common neighbours.

OXEN IN HARNESS.

He has practised this mode of drawing oxen some time, and finds it infinitely preferable to using yokes. They walk in harness as fast as horses.

CATTLE.

Mr. Fletcher has been very attentive to the breed of his cows, which are most of them of the
Stafford-

Staffordshire or Lancashire fort, which he finds exceeding good ones ; he has some of the finest Lancashire bulls I have any where seen.

SOWING BARLEY.

It is the custom among the farmers to delay sowing their barley till very late. Sometimes, in order to give more tillage, Mr. Fletcher tried sowing it early in March, and has a crop much superior to the later sown.

SPRING WHEAT.

This he has tried from Cornwall, and from sowing it the 16th of april, has reaped it as early as the common sown wheat of the country. He has also tried it by an autumn sowing, and it is then reaped 3 weeks sooner.

C A B B A G E S

He cultivates every year for feeding his cows; and finds no ill taste in his butter from them.

T U R N I P S

He cultivates very carefully, hoes them well, and gets great crops, with exceeding fine barley after them.

F A R M Y A R D.

His farm-yard system is among the best I have any where seen. In autumn he carts marle in, and spreads it ; upon this he confines his cattle, giving

giving them their fodder on it ; and he has a well in the lowest part for pumping up the drainings and scattering them by troughs over the whole body of the compost.

FOOD OF COWS.

Mr. Fletcher has remarked quite contrary to the Cheshire notion, that his improved lands that have been dunged and marled, give by far the richest food to the cows, so that upon turning them into unimproved pastures they immediately fall off considerably in their milk.

COURSE.

His course is that excellent one,

- | | |
|---------------------|------------|
| 1. Turnips, | 2. Barley, |
| 2. Clover one year, | 4. Wheat. |

SOILING.

This he has done with such success, instead of letting the horses run into the fields, that he is determined to persist in it.

HOLLOW DRAINS.

This branch of husbandry he has practised on his grass land, and with the greatest success. With the help of liming, all the rushes by this means disappear.

Mr. Fletcher's ornamented grounds are among the most beautiful in the kingdom, and travellers who take this road to Holyhead or elsewhere, would find their curiosity amply repaid by visiting them.

The

The situation of the ground is beautiful, and commands all the variety that steep declivities, umbrageous wood, rich vales, and extensive prospect can combine. The walks are traced with taste, and the whole unites to form a scenery truly pleasing.

The 16th reached Wrexham. The 17th by Mold to St. Asaph. The 18th to Conway and Bangor. The 19th to Holyhead. The minutes of this part of the journey were lost, with other papers, in coming from Ireland.

HULL.

IN the the thirty years since I was at Hull, I conceive there are few places in the kingdom more improved than this. It was a close-built dirty, ugly place, that seemed to be far removed from all ideas of improvement, neatness, or beauty in buildings, whether public or private. The change effected is striking! A new town is added, containing many very handsome, well-built houses : the streets are wide, and the houses elegant. A dock, covering ten acres, is dug, which contains a hundred and twenty ships, and cost 50,000*l.* raised in a hundred and twenty shares, of 250*l.* each ; and such has been the prosperity of trade, that these shares now sell at 1100*l.* and have as high as 1550*l.* Noble as this work is, it is insufficient for the shipping ; and another is in contemplation, which will be effected when money is less valuable than it is at present. I lamented that so great a work should have been executed in brick.

This vast increase of commerce at Hull deserves particular attention ; for it marks the rising prosperity of the kingdom, in the last thirty years, much more clearly than the pro-

gress of London or Liverpool. Those places have almost entirely engrossed the American trade; and their increase has depended a good deal on the immense and rapid increase of population in America: but Hull is a place that subsists by the consumption of our own country, demanding a vast increase of imports, and being able to pay for them by rising exports to long-established countries.

The navigation of the Humber is estimated at twenty millions sterling per annum. Immense exports pass by the Air and Calder; and they roughly estimate the imports at two hundred thousand tons, at the average of 30*l.* making 6,000,000*l.* They build many ships, at 6*l.* per ton, dead weight, for wood and iron; some to eight hundred and nine hundred tons; Greenlanders generally from three hundred to six hundred tons.—This is an increasing fishery, and has been of late very successful. I inquired if the gun-harpoon, introduced under the auspices of the Society of Arts, was in use; and was assured that none are used, though some are taken out by order of the ship-owners.

House-rent is low. Provisions—Beef, 8*d.*; mutton, 6*d.*; skate, 1*d.* per lb.; salmon, 1*s.* cod, 1½*d.* smelts, 6*d.* a score. Rent of garden-ground, 4*l.* and 4*l.* 10*s.* an acre.

In the dock, the machine called the bear is

generally at work, raising the warp; which, were it not well attended to, would soon fill up the whole. As I wished to know the quantity of warp deposited by the water of the Humber, Thomas Thomson, Esq. of this place, (to whose kindness and attention I owe much,) introduced me to Mr. John Harrap, the dock company's surveyor, a very ingenious and well-informed engineer, by whom I was favoured with the following particulars.

"Hull, 6th September, 1797.

"Calculation of the quantities of mud taken out of the Hull dock, in the summer months, from April to the month of November. The quantities in each year, from 1790, as follows :

Years.		Tons.
1790	—	27,018
1791	—	20,755
1792	—	22,489
1793	—	19,393
1794	—	28,833
1795	—	27,122
1796	—	21,123
		<hr/>
		7) 166,733
		<hr/>
Average	-	23,819
		<hr/>

“The mud costs $2\frac{1}{4}$ d. per ton taking out ; the company finding machine, boats, and ropes.

“The average height of spring tides, in the dock, taking fourteen tides together, is nineteen feet six inches water upon the lock threshold ; and is run out of the dock, at each tide, to the depth of sixteen feet six inches. In consequence of this, the depth of three feet of water on the surface of seven acres and a half, flows into the dock each tide, as above, in the course of spring tides.

“The average height of neap tides in the dock, taking fourteen tides together, is sixteen feet six inches water upon the lock threshold ; and is run out of the dock, at each tide, to the depth of fourteen feet six inches. In consequence of this, the depth of two feet water each, the same surface as in the spring tides.

“The clear area of the dock is about ten acres ; and the mud is supposed to lie in the area of seven acres and a half, in consequence of its falling by the time it has reached two-thirds of the way up the dock.

“The great difference of the quantities of mud taken out in each year, is occasioned in part by the crowded state of the shipping, as particularly in the year 1796, &c.”

Hence it appears, that ten acres of water, to the average depth of two feet and a half, depo-

sits twenty-three thousand tons of warp per annum, or two thousand three hundred tons per acre. This is a curious fact; for it proves how amazingly loaded the water of the Humber is with this mud. I have heard it calculated that a hundred loads of marl adds about an inch to the soil of a field: if one hundred tons of warp does the same, two thousand three hundred tons would add twenty-three inches. But I do not conceive the idea to be accurate; and that the addition of so close a body as mud, subsided regularly from water, would not increase the soil more, probably, than eighteen inches. But this shows how much may be done in one season, by warping land; as practised on the lands adjoining the rivers which fall into this great estuary of the Humber.

But another fact arises from this account, which seems to me to be particularly interesting, and to demand, in a singular manner, the attention of farmers; for it shows how infinitely superior every branch of manufacture and of commerce is to agriculture, in the application of the mechanic powers. This machine, the bear, raises mud from the bottom of at least fourteen feet of water, delivers it into barges, and these barges go out into the Humber at a considerable distance, to discharge it for the small expence of $2\frac{1}{4}$ d. per ton!!! The men who so contract

finding all labour, and horses to work the machine. A farmer pays as much, and in some places more, for raising earth into a cart. Thus infinitely superior is the merchant, even in the farmer's own trade of raising earth! I pay 3d. a cubical yard, which may be called a ton, for wheeling mud eighty yards; and these men take it up fourteen feet from below water, and carry it, I suppose, a mile, for less money! Such facts are mortifying; they show how contented the whole race of agriculturists have slept for ages, while in manufactures and commerce every exertion of human abilities has been brought into full energy, to abridge labour, and lessen expences.

For the following satisfactory particulars I am indebted to Mr. Thomas Frost, of this town.

PARTICULARS OF THE TOWN OF KINGSTON-UPON-HULL.

EXTENT.

THE town of Kingston-upon-Hull is bounded on the east by the river Hull, on which it stands; on the south, by the river Humber; on the west, by the lordship of Myton; and on the north, by the lordship of Sculcoates.

It is divided into two parishes, viz. the Holy Trinity and Saint Mary ; was formerly inclosed by walls, a ditch, or fosse, and other military works ; and contains within the walls, (which were lately taken down,) an area of about seventy-three acres of ground.

The county of the town of Kingston-upon-Hull, lies westward of the town of Hull ; is supposed to contain about twelve thousand acres, and comprizes the lordship of Myton, and the several townships of Hessle, Anlaby, Tranby, Ferriby, Swanland, West Ella, Kirk Ella, and part of Willerby. This district was formerly a part of the county of York, but was separated therefrom, and, with the town of Hull, formed into a county, by charter of the 25th of Henry the Sixth.

POPULATION.

The conjectures of the public respecting the population of Hull having been extremely various, the Society for Literary Information in Hull, toward the latter end of the year 1792, in order accurately to ascertain their number, took an actual enumeration of the inhabitants, including those of the parish of Sculcoates, which, from its contiguity to Hull, may be considered as a part thereof.

The following is an abstract of the enumeration.

Families	-	-	5,256
Males	-	10,573	
Females	-	11,713	
			<hr/>
Total of inhabitants	-		22,286

*Average of births for the years 1789, 1790, 1791,
and 1792.*

Trinity church	-	384 $\frac{1}{4}$
St. Mary's, ditto	-	133
Sculcoates, ditto	-	90 $\frac{1}{4}$
Mr. Lambert's chapel	-	45 $\frac{1}{2}$
Mr. Beverley's, ditto	-	41
Mr. Green's, ditto	-	31
Mr. Beatson's, ditto	-	20
Quaker's	-	5
Jews	-	2
Total		<hr/> 752

Average of burials for the same periods.

Trinity church	-	400 $\frac{3}{4}$
St. Mary s, ditto	-	144 $\frac{3}{4}$
Sculcoates, ditto	-	111 $\frac{1}{2}$
Quaker's	-	4
Jews	-	1
		<hr/>
Total	-	662 $\frac{1}{4}$

Average of inhabitants.

To a family	-	4 $\frac{2}{10}$
Births	-	1 in 29 $\frac{6}{10}$
Burials	-	1 in 33 $\frac{6}{10}$

Number of females more than males 1140

NUMBER OF HOUSES.

*Number of houses in Hull, exclusive of Sculcoates,
that pay the house or window-tax, viz.*

Single tenements	-	1607
Double ditto	-	109
Total	.	<u>1716</u>

HOUSES EXEMPT.

It is not known, with certainty, what number of houses in Hull are exempt from the house or window-tax.

By the act of parliament for laying a duty on inhabited houses, houses of less value than 5*l.* per annum, are not rateable to that tax; but to the window-tax they are rateable, let the value be ever so small.

It has been the custom in Hull, not to rate any person to the poor-rate unless they were legally settled in Hull, or rented 10*l.* a year, or where not likely, (when the rental was less than 10*l.* per annum) to become chargeable; but as

no settlement is gained by being assessed to and paying the house and window duty, it is imagined fewer on that account are exempt from those taxes, than from the poor-rate.

OCCUPATIONS.

Hull being a large sea-port town, the inhabitants thereof are principally engaged in commercial pursuits, and those in the neighbourhood in agriculture. The importations into Hull are, iron from Sweden, iron, timber, hemp and flax from Russia, and wine from Spain and Portugal.

MANUFACTURES.

There are no woollen or cotton manufactories in or near Hull;—some sail-cloth and sacking is manufactured, but the quantity is not very considerable. There are also rope-makers, mast-makers, block-makers, six or seven yards for building, and as many dry docks for repairing ships ; two sugar-houses, a soap-house, a paper-mill, and several mills for crushing rape-seed and linseed, grinding flour, &c., some of which are worked by steam-engines, and the rest by wind.

PRICE OF PROVISIONS.

Both corn and shambles meat are at this time* much higher, than at the same season of

* June 30, 1796.

the year on an average for the last twenty years. Middling wheat is from 75s. to 81s. per quarter. Beef, from 4d. to about 7d. per lb.; and mutton, from 5d. to 6d. per lb.

WAGES.

The wages of labourers in the town of Hull, are so various, that it is difficult to estimate them with any accuracy. In the neighbourhood of Hull, the wages of a common agricultural labourer, at this time, is from 1s. 9d. to 2s. per day; more at the latter price than the former. Immediately preceding 1795, they might be estimated at 1s. 6d. to 1s. 8d. per day. At task-work, a man will earn from 2s. 6d. to 3s. per day. The wages of a woman, are from 6d. to 8d. per day. Wages in harvest are higher.

RENTAL.

The rental of the town of Hull, may be estimated at from thirty-five to forty thousand pounds per annum.

	£.	s.	d.
The land tax for the town, is			
per ann. - -	1,541	16	8
Ditto for the county - -	511	5	8
	<hr/>		
Making together	£2,053	2	4
	<hr/>		

The land for two or three miles round Hull is in grazing for the convenience of the inhabitants. The rent of that which is contiguous to the town, is from four to five pounds per acre. The rents decrease in proportion to the distance of the land from the town—At four or five miles from Hull, it is about thirty shillings per acre.

RELIGION.

The following is the state of dissenters in Hull.

Three Independent meeting-houses, attended by very numerous congregations. These are principally of the Calvinistic persuasion.

One Presbyterian meeting, said to be of the Socinian cast.

One particular Baptist meeting.

One general ditto.

One Sandimanian ditto.

One Roman Catholic chapel.

One Methodist meeting.

One ditto, Lady Huntingdon's.

One Quaker's meeting.

In the year 1769, there were not more than five meeting-houses in the town.—Their increase is generally imputed to the want of room in the churches, which were originally only two; a third was built in 1791.

ALEHOUSES.

The number of licensed alehouses in Hull

this year (1796) are	-	-	178
Ditto in the county	-	-	9
			<hr/>
Making together			187
			<hr/>

FARMS.

There are but few farms in the neighbourhood of Hull. The rentals vary, and are in general from fifty to two hundred pounds per annum. The tenure of the land, in the neighbourhood of Hull, is principally freehold. In Holderness, which lies east of Hull, the lands in several townships are copyhold.

The principal articles of cultivation, are wheat, oats, barley, and beans.

COMMONS AND WASTE LANDS.

There are but few commons, and little or no waste lands, in the neighbourhood of Hull.

INCLOSURES.

The lordship of Sculcoates, which lies north of, but is contiguous to the town of Hull, probably contains about acres, and was inclosed upwards of a century ago

The township of Sutton and Stone Ferry, part of which extends nearly to the town of Hull,

contains about 4,180 acres, and were inclosed by act of parliament in 1764.

Myton Carr, which lies west of, and is also contiguous to the town of Hull, contains about 170 acres, and was inclosed by act of parliament about the year 1771. The open fields of Hessle, Anlaby, and Tranby, which lie still further west of Hull, contain about 3,640 acres, and were inclosed by act of parliament in 1792. The open fields of West Ella, Kirk Ella, and Wellerby, lie still further west of Hull, and contain about 1700 acres. An act has been obtained this year (1796) for the inclosure thereof.

The fields of Ferriby and Swanland contain about 4,900 acres, and are still open.

POOR.

In the 9th and 10th of King William the Third, an act passed for erecting workhouses, and houses of correction, in the town of Hull, for the better employment and maintenance of the poor; whereby several persons therein named were incorporated by the name of "The Governor, Deputy Governor, Assistants, and Guardians of the Poor" to have the care of, and provide for, the maintenance of *all the poor within the town*, of what age or kind soever; except such as should be sufficiently provided

for by the charitable gifts of other persons, or in hospitals, or alms-houses.

In 1698, the corporation built a house, called the Charity Hall, in which the poor have since been, and continue to be maintained.

As the poor increased, several other acts of parliament were obtained (viz. 8th Anne, c. 11. 15th Geo. II, c. 10. and 28th Geo. II. c. 27.) to empower the corporation to raise further sums of money for the maintenance of the poor, than they were authorised by the act 9th and 10th of William the Third.

The following table shows the sums raised annually by virtue of those acts, from the year 1728 to the year 1796, inclusive.

Years.	£.	s.	Years.	£.	s.
1728	-	416 0	1741	-	442 0
1729	-	442 0	1742	-	650 0
1730	-	442 0	1743	-	643 10
1731	-	442 0	1744	-	643 10
1732	-	442 0	1745	-	650 0
1733	-	442 0	1746	-	650 0
1734	-	442 0	1747	-	546 0
1735	-	442 0	1748	-	546 0
1736	-	442 0	1749	-	650 0
1737	-	442 0	1750	-	650 0
1738	-	442 0	1751	-	650 0
1739	-	442 0	1752	-	650 0
1740	-	442 0	1753	-	650 0

Years		£.	s.	Years.		£.	s.
1754	-	650	0	1776	-	1144	0
1755	-	975	0	1777	-	1144	0
1756	-	975	0	1778	-	1248	0
1757	-	975	0	1779	-	1404	0
1758	-	1300	0	1780	-	1456	0
1759	-	1300	0	1781	-	1664	0
1760	-	1300	0	1782	-	1664	0
1761	-	1300	0	1783	-	1976	0
1762	-	1300	3	1784	-	1976	0
1763	-	988	0	1785	-	2080	0
1764	-	988	0	1786	-	2288	0
1765	-	988	0	1787	-	2652	0
1766	-	832	0	1788	-	3276	0
1767	-	702	0	1789	-	3276	0
1768	-	728	0	1790	-	3276	0
1769	-	832	0	1791	-	2457	0
1770	-	832	0	1792	-	2457	0
1771	-	832	0	1793	-	3276	0
1772	-	988	0	1794	-	4095	0
1773	-	1144	0	1795	-	5616	0
1774	-	1144	0	1796	-	5616	0
1775	-	1144	0				

It appears from this table, that war has at all times a great influence in increasing the poor-rates in Hull, owing to the great number of sailors who enter, or are impressed into his Majesty's service; and whose families, not being left sufficiently provided for, are obliged to apply to the parish for relief.

This method of providing for the poor has been found by experience to tend greatly to the

ease of the inhabitants of the town; and the poor receive a more comfortable maintenance and relief now, than before the passing of these acts.

In the last winter, (1795-6,) the number of persons maintained in the house were about 345. The number this day, (June 18, 1796,) amounts to 214; besides which 900 families, containing about 2600 persons, (men, women, and children,) receive weekly relief out of the house. The out-relief for the week ending last Saturday, (June 11, 1796,) amounted to 47l. 2s. 6d. In addition to the above, 102 children are at this time nursed out of the house; the expence of which, for the week ending as above, amounted to 6l. 19s. 3d. The children in the house are employed in spinning jersey, their earnings amount annually to about 110l.

The old people tease rope into oakum, for the use of ship carpenters: their earnings amount annually to about 30l.

The other persons in the house, that have been brought up to handicraft trades, such as shoemakers, taylors, &c. are constantly employed in making up and repairing clothes for the poor that are maintained in the house.

The women knit all the hosiery, and keep the house clean.

The children are instructed in reading and writing,—Prayers are read in the house daily;

and on Sunday's, all who are able, attend divine service, in the forenoon and the afternoon, in Trinity Church.

The internal affairs of this house, and the cleanliness with which it is kept, cannot be spoken of in too high terms. The late Mr. Howard confessed that the neatness and cleanliness of the poor-house was a credit to the town. All the rooms in the house are washed, and the bed-clothes well aired every week. The beds are all taken down once a year.

Births in the poor-house.

Years.		Births.	Years.		Births.
1792	-	21	1794	-	25
1793	-	28	1795	-	27

The births for a greater number of years past could not conveniently be obtained, as no registry is kept of the births and burials in the house.

The births, upon an average, are about ten in a year, being chiefly of young unmarried girls, sent into the house to lie-in.

A table of baptisms and burials at the Holy Trinity church in Hull, for different years, from 1689 to 1753, inclusive.

Years.	Baptisms.	Burials.	Years.	Baptisms.	Burials.
1689	—	178 - 252	1730	—	183 - 216
1690	—	167 - 187	1739	—	196 - 243
1709	—	137 - 157	1740	—	192 - 216
1710	—	157 - 204	1750	—	— - 279
1719	—	154 - 244	1751	—	— - 231
1720	—	149 - 280	1752	—	245 - 244
1729	—	142 - 993	1753	—	243 - 262

A table of marriages, baptisms, and burials, distinguishing the sex, at the Holy Trinity church, in Hull, for the several years, from 1755 to 1795, inclusive.

Years.	Marriages.	Baptisms		Total.	Burials.		Total.
		Males.	Females.		Males.	Females.	
1755	—	141	135	276	140	134	274
1756	—	123	119	242	159	160	319
1757	—	108	130	238	136	183	319
1758	—	112	120	232	159	156	315
1759	—	103	126	229	115	131	246
1760	—	125	128	253	152	175	327
1761	—	122	115	237	124	128	252
1762	—	118	114	232	148	195	343
1763	—	104	126	230	135	144	279
1764	—	114	130	244	106	118	224
1765	—	131	110	241	137	167	304
1766	—	130	134	264	137	128	265

Years.	Marriages.	Baptisms.		Total.	Burials.		Total.
		Males.	Females.		Males.	Females.	
1767	—	141	117	258	143	155	298
1768	—	133	141	274	112	115	227
1769	—	138	144	282	186	192	378
1770	—	138	157	295	134	150	284
1771	—	136	126	262	101	97	204
1772	—	134	155	289	164	181	345
1773	—	154	74	228	148	211	359
1774	—	157	168	325	115	130	245
1775	—	144	152	296	166	190	356
1776	—	164	162	326	146	173	319
1777	—	191	151	342	152	141	293
1778	—	151	166	317	188	195	383
1779	—	145	166	311	150	167	317
1780	—	142	145	287	190	201	391
1781	—	141	151	292	176	160	336
1782	—	173	165	338	145	164	309
1783	—	160	110	270	226	213	439
1784	—	168	162	330	170	190	360
1785	—	200	188	388	178	156	334
1786	211	206	207	413	244	242	486
1787	195	218	194	412	185	186	371
1788	185	196	180	376	230	256	486
1789	210	206	204	410	260	298	558
1790	189	194	177	371	173	210	383
1791	201	175	202	377	195	281	376
1792	196	181	194	375	212	74	286
1793	205	193	191	384	186	199	385
1794	204	195	175	370	304	312	616
1795	187	184	205	389	200	239	439
		6289	6216	12505	6833	7197	14030

*A table of the marriages, baptisms, and burials,
at Saint Mary's church, in Hull, for the
several years from 1754 1795, inclusive.*

Years.	Marriages	Baptisms.		Total.	Burials.		Total.
		Males.	Females.		Males.	Females.	
1754	—	—	—	65	—	—	48
1755	—	—	—	59	—	—	59
1756	—	—	—	57	—	—	81
1757	—	—	—	59	—	—	63
1758	—	—	—	55	—	—	73
1759	—	—	—	65	—	—	57
1760	—	—	—	62	—	—	79
1761	—	—	—	59	—	—	87
1762	—	—	—	53	—	—	81
1763	—	—	—	66	—	—	85
1764	—	—	—	59	—	—	70
1765	—	—	—	62	—	—	76
1766	—	—	—	62	—	—	57
1767	—	—	—	73	—	—	84
1768	—	—	—	87	—	—	70
1769	—	—	—	83	—	—	80
1770	—	—	—	87	—	—	65
1771	—	—	—	98	—	—	64
1772	—	—	—	80	—	—	105
1773	—	—	—	81	—	—	101
1774	—	—	—	94	—	—	85
1775	—	—	—	78	—	—	114
1776	—	—	—	87	—	—	108
1777	—	—	—	98	—	—	110
1778	—	—	—	89	—	—	114

Years.	Marriages.	Baptisms.		Total.	Burials.		Total.
		Males.	Females.		Males.	Females.	
1779	—	—	—	89	—	—	106
1780	—	—	—	75	—	—	109
1781	—	—	—	98	—	—	99
1782	—	—	—	88	—	—	107
1783	—	—	—	95	—	—	157
1784	—	—	—	116	—	—	123
1785	—	—	—	120	—	—	129
1786	60	54	57	111	68	69	137
1787	60	53	71	124	56	82	138
1788	54	54	64	118	78	85	163
1789	47	62	83	145	69	97	166
1790	48	68	65	133	68	61	129
1791	57	58	47	105	78	60	138
1792	60	61	76	137	72	61	133
1793	62	61	58	119	60	65	125
1794	60	67	65	132	115	117	232
1795	62	78	49	127	64	67	131
				3750			4338

N. B. Most of the dissenters in Hull, baptize and register the baptisms at their respective chapels, so that the same are not included in the above tables of baptisms, at the churches of the Holy Trinity and St. Mary. The proportion which the former bear to the latter, may be seen in the "Average of Births for the Years 1789, 1790, 1791, and 1792."

The Quakers and Jews in Hull, having burial-places of their own; their burials are not in-

cluded in the above tables. The proportion they bear to the other burials in Hull, may be seen in the "Average of Burials," for the above years.

A table of the marriages, baptisms, and burials, distinguishing the sex, at Sculcoates church, for the several years, from 1755 to 1795, inclusive.

Years.	Marriages.	Baptisms.		Total.	Burials.		Total.
		Males.	Females.		Males.	Females.	
1755	4	16	8	24	13	10	23
—56	10	8	8	16	12	12	24
—57	9	9	13	22	9	16	25
—58	8	9	14	23	24	18	42
—59	6	13	20	33	12	22	34
—60	6	10	13	23	30	26	56
—61	4	11	11	22	22	25	47
—62	7	13	12	25	24	24	48
—63	12	7	8	15	22	28	50
—64	10	18	15	33	17	25	42
—65	14	6	10	16	32	26	58
—66	4	11	11	22	22	17	39
—67	12	10	22	32	20	25	45
—68	8	11	17	28	17	34	51
—69	8	4	20	24	35	35	70
—70	5	17	19	36	23	21	44
—71	8	11	14	25	22	23	45
—72	11	17	13	30	23	22	45
—73	12	9	17	26	39	29	68
—74	11	23	26	49	22	21	43
—75	9	22	18	40	36	56	92
—76	15	19	29	48	24	18	42
—77	12	14	28	42	32	42	74
—78	15	25	19	44	41	56	97
—79	10	19	33	52	39	38	77
—80	9	22	23	45	38	41	79
—81	21	22	22	44	30	33	63
—82	12	19	15	34	19	33	52
—83	23	29	17	46	46	48	94

Years.	Marriages.	Baptisms.		Total.	Burials.		Total.
		Males.	Females.		Males.	Females.	
1784	20	31	33	64	39	48	87
—85	12	37	27	64	31	39	70
—86	18	35	31	66	62	50	112
—87	24	37	19	56	26	39	65
—88	33	40	32	72	49	55	104
—89	37	34	34	68	77	64	141
—90	39	34	47	81	34	38	72
—91	41	43	53	96	39	43	82
—92	48	50	50	100	61	69	130
—93	33	59	45	104	50	41	91
—94	48	55	59	114	103	78	181
—95	64	57	46	103	39	48	87
	714	936	971	1907	1355	1436	2791

List of friendly societies in Hull, distinguishing such of them as have had their rules confirmed by the magistrate.

Societies Names.	No. of Members			When Instituted.	
Unanimous	-	-	212	-	July 2, 1783.
Old Union	-	-	188	-	Nov. 6, 1782.
Provident Brotherhood	-	-	68	-	Sept. 7, 1782.
Duchess of York	-	-	43	-	April 20, 1792.
Good Agreement	-	-	101	-	Dec. 21, 1789.
Old Amicable	-	-	164	-	Jan. 6, 1783.
Good Intent	-	-	131	-	Sept. 4, 1787.
True Friendship	-	-	51	-	Jan. 1, 1790.
Duke of York	-	-	80	-	Aug. 16, 1793.
United Seamen	-	-	141	-	Jan. 1, 1782.
Duke of Clarence	-	-	65	-	Feb. 4, 1791.
Sisterly Union	-	-	51	-	Mar. 16, 1791.
Concord	-	-	151	-	Jan. 2, 1787.
Diligent	-	-	31	-	Feb. 14, 1792.
Prince of Wales	-	-	45	-	Aug. 12, 1783.

Rules confirmed.

Societies Names.	No. of Members.	When Instituted.	
British Constitutional, or Tradesmen Friendly	} - 71	July 13, 1789.	} Rules confirmed.
Princess Royal		Nov. 19, 1792.	
Jubilee - - -		April 13, 1788.	
Loving Brotherly		Aug. 19, 1793.	
Agreeable - - -	- - 75	1788.	
<hr/>			
Constitutional - - -	- - 78	Mar. 12, 1789.	} Rules not confirmed.
Ropers Friendly	- - 139	Oct. 14, 1777.	
Second Friendly	- - 166	April 1, 1771.	
Fortunate - - -	- - 90	April 4, 1788.	
Generous Friends	- - 45	Sept. 19, 1791.	

Union Society	} Rules not confirmed.	Benevolent Female	} Rules not confirmed.
Royal Friendly		New Amicable	
Fortunate Society		Church and King, and	
United		King and Constitution	
Social		Free Burghers	
Brotherly		Friendly Brotherly	
Queen Charlotte		King George	
Benevolent		King William III.	
New Sisterly		Loyal British	
Revolution Society		New Brotherly	
Old Benevolent		Old and New Friendly	
Humane		Princess Elizabeth	
Brotherly		Union	
Britannia		Well-disposed Brother-	
Brotherly		hood	

In these useful societies, or private fraternities, each member deposits a certain sum of money monthly, as a fund for the support of

such of the members, as, through sickness or infirmity, are unable to procure it for themselves; and to bury them decently when dead. These institutions have been found of great utility, particularly in easing the parish rates.

DIET OF LABOURERS.

The usual diet of labourers in Hull and its neighbourhood is wheaten bread; but since the great advance in the price of wheat, about two-thirds wheat, and one-third rye: the latter is about half the price of the former. The cheapest sort of butcher's meat. Potatoes and fish:—the latter may be frequently bought on moderate terms.

EARNINGS AND EXPENCES OF LABOURERS.

The earnings of a labourer have already been mentioned under the title "Wages." Including the increase of wages in harvest, and the advantages arising from task work, those of an industrious man may be estimated at about forty pounds per annum, (exclusive of the earnings of his wife and children;) a sum equal to the support of a man and his wife, and from *two to three children*, which it is conceived is about the average of families.

Mr. Davis thinks a man and his wife, and four or five children, only a medium. His sup

position seems to be grounded on Price's calculation of five to a house, which has since been found too high: four and a half is the present estimate, and perhaps much nearer the truth; and even this estimate is not of a *family*, but of the inhabitants of a *house*, in which there may be more than one *family*,* or there may be lodgers that are not children. If, therefore, according to the most accurate calculation, there be only four and a half individuals to a *house*, Mr. Davis must be too high in estimating six and a half (or a man and his wife, and from four to five children) to a family.

TRADE AND COMMERCE.

The following table shows the state of the trade and commerce of the port of Kingston-upon-Hull, at the close of the last, and beginning of the present century.

A state of the revenue of the port of Kingston-upon-Hull, from the year 1689 to the year 1706.

					£.	s.	d.
From Jan. 1, 1689	to Jan. 1, 1690	-			13,191	12	10½
— — — 90	— — — 91	-			12,573	4	1½
— — — 91	— — — 92	-			30,055	0	6
— — — 92	— — — 93	-			19,136	1	1½
— — — 93	— — — 94	-			18,230	2	9

* From a great number of cases, it appears that this is much too low.

A. Y.

					£.	s.	d.
From Jan. 1, 1694 to Jan. 1, 1695	-				17,936	1	1½
— — — — — 95 — — — — 96	-				18,471	4	10½
— — — — — 96 — — — — 97	-				14,459	9	5½
— — — — — 97 — — — — 98	-				19,759	14	6
— — — — — 98 — — — — 99	-				25,157	18	8½
— — — — — 99 — — — — 1700	-				26,472	11	6½
— — — — — 1700 — — — — 1701	-				26,287	0	8½
— — — — — 1701 — — — — 1702	-				23,967	12	4½
— — — — — 1702 — — — — 1703	-				17,948	5	3½
— — — — — 1703 — — — — 1704	-				18,057	18	11½
— — — — — 1704 — — — — 1705	-				20,153	15	10½
— — — — — 1705 — — — — 1706	-				21,283	0	1½

The following table being compared with the above, will show the progress trade and commerce have made at Hull during the present century.

A State of the revenue of the port of Kingston-upon-Hull, from the year 1766 to the year 1792.

					£.	s.	d.
From Jan. 5, 1766 to Jan. 5, 1767	-				72,297	18	10½
— — — — — 67 — — — — 68	-				78,592	0	11
— — — — — 68 — — — — 69	-				83,606	18	0½
— — — — — 69 — — — — 70	-				91,502	19	11½
— — — — — 70 — — — — 71	-				88,593	7	1½
— — — — — 71 — — — — 72	-				87,704	19	5½
— — — — — 72 — — — — 73	-				79,752	7	9½
— — — — — 73 — — — — 74	-				87,008	15	10½
— — — — — 74 — — — — 75	-				88,903	15	0½
— — — — — 75 — — — — 76	-				91,366	3	0
— — — — — 76 — — — — 77	-				86,910	10	10½

					£.	s.	d.
From Jan. 5, 1777 to Jan. 5, 1778	-				90,857	5	9½
— — — — — 78 — — — — — 79	-				78,229	3	11½
— — — — — 79 — — — — — 80	-				79,293	12	3
— — — — — 80 — — — — — 81	-				113,804	0	0
— — — — — 81 — — — — — 82	-				107,976	14	9
— — — — — 82 — — — — — 83	-				86,521	19	5½
— — — — — 83 — — — — — 84	-				126,660	2	8
— — — — — 84 — — — — — 85	-				147,438	3	9
— — — — — 85 — — — — — 86	-				125,635	17	6¼
— — — — — 86 — — — — — 87	-				149,805	0	0
— — — — — 87 — — — — — 88	-				132,844	3	3½
— — — — — 88 — — — — — 89	-				145,004	2	1
— — — — — 89 — — — — — 90	-				154,506	10	4½
— — — — — 90 — — — — — 91	-				135,732	7	8
— — — — — 91 — — — — — 92	-				175,872	1	7
— — — — — 92 — — — — — 93	-				199,988	4	3½

A still further idea of the trade of Hull may be formed from a view of the number of ships, with their tonnage, employed in carrying it on, which may be seen in the following table.

Ships from foreign parts, and coasters, with the tonnage of each, that arrived in the port of Kingston-upon-Hull, in the following years.

Years.	Ships from Foreign Parts.	Tons.	Coasters	Tons	Tot Tons.	Tot. Ships.
1788	459	90,111	599	49,093	139,204	1058
1789	469	91,497	675	51,834	143,331	1144
1790	492	97,158	778	59,157	156,315	1270
1791	637	119,840	800	61,707	181,547	1437
1792	673	135,846	849	66,443	201,789	1522
1793	561	119,020	829	64,383	183,403	1390
1794	457	88,932	789	58,867	147,799	1246
1795	453	87,448	870	63,088	150,536	1323

The five first years in the above table were those immediately preceding the war.

A MONTH'S TOUR TO NORTHAMP- TONSHIRE, LEICESTERSHIRE, &c.

By the Editor.

1791.—July 18. **I** Have minuted notes of the country between Bradfield and Cambridge before; it affords me, therefore, no other remark than that of its want of improvement. Great tracts of land well adapted to sainfoin, but not an acre more sown than ten years ago; and streams that call aloud for irrigation, without a single acre of watered meadow: such supineness is dreadful.

The 19th. Taking the road from Cambridge to St. Neot's, view for six or seven miles the worst husbandry I hope in Great-Britain. All in the fallow system, and the loss of time, and the expence submitted to, without the common benefit, these fallows are over-run with thistles, and the dung being spread over them forms an odd mixture of black and green that would do well enough for a meadow, but is villainous in tillage. Some divisions of these fallows have not yet been broken up since reaping the last year's crops. Bid the current of national improvement roll back three centuries, and we may imagine a period of ignorance adequate to the exhibition of such exertions! To what corner of the three kingdoms—to what
beggarly

beggarly village must we go to find in any branch of manufacture such sloth—such ignorance—such backwardness—such determined resolution to stand still, while every other part of the world is at least moving? — It is in the *agriculture* of the kingdom alone that such a spectacle is to be sought. There seems somewhat of a coincidence between the state of cultivation within sight of the venerable spires of Cambridge, and the utter neglect of agriculture in the establishments of that University.

They are ploughing here with poor implements, drawn by two horses at length, and conducted by a driver. The crops of wheat pretty good; all others bad.

At Knapwell there is a parliamentary inclosure, and such wretched husbandry in it, that I cannot well understand for what they inclosed relative to management; rent is the only explanation which has risen from 5s. tythed, to 10s. or 11s. free. They sow hay feeds and clover, but little comes except raygrafs and thistles; soil a strong loam, and some clay. Thence to St. Neot's, and all the way from Cambridge, must be classed amongst the ugliest countries in England. The lands mostly open field, at 6s. an acre. The management very bad, much strong clay, and some fallows not yet ploughed; the course,

1. Fallow, ploughed thrice; breaking up 7s. 6d.
Two stirrings, each 3s. with 4 horses and a driver.

2. Wheat, produce 14 or 15 bush. per acre short of statute measure.

3. Oats or beans.

About St. Neot's a vast improvement by an inclosure, which took place 16 years ago, which makes the country much more beautiful, and has been a great benefit to the community. A gentleman of the town however complained, as I rode thither with him, that, notwithstanding the productiveness of the soil was certainly greater, yet that the poor were ill-treated by having about half a rood given them in lieu of a *cow keep*, the inclosure of which land costing more than they could afford, they sold the lots at 5l. the money was drank out at the ale-house, and the men, spoiled by the habit, came, with their families, to the parish; by which means poor rates had risen from 2s. 6d. to 3s. and 3s. 6d. But pray, sir, have not rates arisen equally in other parishes, where no inclosure has taken place? Admitted. And what can be the good of commons, which would not prevent poor rates coming to such a height? Better modes of giving the poor a share might easily, and have been, as in other cases, adopted.

St. Neot's, which enjoys the various advantages of the fine river Ouse, has a very great corn-market; so many as 1100 sacks of wheat have been pitched on the market-hill in one day, as it is not sold by sample. Mutton here cheaper than beef, which is not common. Wool last year 22s. 6d.
expected

expected now to be dearer! Land through the country sells now at 26 years purchase, some at 27, and even to 28. Rents undoubtedly rising, average of the line about 10s. No manufacture in the town, but population increases.

To Bedford, the country is rather more inclosed, rent 12s. From Cambridge to Bedford cattle are a compound mixt of bad mongrels. Meet here a waggon load of wool going from Bedfordshire to Bury. The local position of manufactures is not easily accounted for. The wools of Northamptonshire, Bedfordshire, &c. go to Bury to be spun, and to Norwich to be woven, yet St. Neot's and Bedford are populous places, the former without any manufacture, and the latter little, except a scattering of lace, why should not these wools be spun and woven here, upon a considerable navigation, and much nearer to London, one great market for the goods of Norwich. Would it not be as good an employment as the vile one of electioneering?

The 20th. To Newport Pagnel, a country of mixed features, open fields, with inclosures about the villages. Rent about 10s. Much very bad corn; indeed all so except wheat. All the way from Cambridge the land prepared for turnips so surprisingly small, I believe in 40 miles not 40 acres, that live stock must be very sparingly kept. The first stone quarries are seen about five miles from Bedford.

Towards Newport much grafs land; nearer that town the land improves, but varies much; stiff clay, but speckled with chalk ftones; plough with four horfes at length. Here the white-faced horn fheep are general; Wiltfhires and the varieties bred from them.

In the 53 miles from Newmarket to Newport Pagnel, there is fo little interefting to the eye of a farmer, that I cannot but rank it amongft the worft cultivated diftricts in England; and there are few parts of France that have a worfe appearance. If we are to look to national wealth as the caufe of a prosperous agriculture, what has that wealth done for this extenfive diftrict? which could fcarcely be worfe cultivated in the time of Fitzherbert. In beauty of landfcape, the poverty of this line is equally great; except one fcene between St. Neot's and Bedford, where the road looks down on the Oufe; and the firft view of Newport Pagnel, from the hill above it, and over a vale of corn, with a fufficiency of wood, and a winding river—thefe two views excepted all is blank.—By Stoney-Stratford to Wakefield Lodge, in Whittlewood Foreft, the feat of his Grace the Duke of Grafton; to whole kind attention I owe the following particulars of the husbandry of the neighbourhood.

I fhall arrange the minutes in four divifions: 1, Arable; 2, Grafs; 3, Live ftock; 4, General œconomy.

I. Arable

I. *Arable.*

The soil of the whole country classes under the general denomination of *clay*, that is to say, it is strong and wet; there are many tracts of loam on a sound bottom, but the general feature is different.

Some open fields yet remain, but the chief part of the country has been inclosed by acts of Parliament. Courses of crops in these are:

- 1, Fallow.
- 2, Wheat.
- 3, Beans; or beans and pease.
- 4, Oats.

- Also,
- 1, Fallow.
 - 2, Wheat.
 - 3, Oats.
 - 4, Clover.
 - 5, Wheat.

On the drier soils.

- 1, Turnips.
- 2, Barley.
- 3, Clover.
- 4, Wheat.
- 5, Oats; or beans and pease,

- Also,
- 1, Turnips.
 - 2, Barley.
 - 3, Beans and pease.

- 4, Oats.
- 5, Clover.
- 6, Wheat.

In their tillage they give four earths to a fallow ; three or four for turnips ; two for barley or oats ; one for pease or beans. Seed, and produce as follow : of wheat they sow two bushels and reap three quarters ; of barley and oats, sow four bushels and gain five quarters ; of beans, sow four or four and a half, and get three and a half quarters ; of pease, sow three bushels, and have three quarters ; of pease and beans mixed, sow four, and reap three and a half quarters. These products are from lands that are in the arrangement of two crops to a fallow ; but if more cropping, then full half a quarter per acre is to be deducted from these products. The manure, consisting of yard dung, is spread very generally on the fallows for wheat, the sheep-fold is reckoned to give better wheat than yard dung : but the beans which follow are better after that. The best circumstance of improvement introduced in the above courses is that of sowing white clover and trefoil, and a little raygrass (better perhaps omitted) with the common clover, and leaving it in *layer*, four, or five, or six years, chiefly fed : this is called up-and-down land. They break up this layer with a crop of oats, and either take a second, or sow the stubble with wheat.

In

In the open fields, the course most common is,

- 1, Fallow.
- 2, Wheat.
- 3, Beans, or pease and beans,

which is perhaps the most barbarous management any where to be met with. If there is in agriculture one plant determinately appropriate for the preparation of another, it is beans for wheat. Turnips are not better adapted, in this respect, to barley, than beans are to wheat. To sow this crop on fallow, and succeeding it with beans, is, therefore, to put the cart before the horse. The improvement to be recommended on soils stiff and harsh, but so adapted to beans, as to yield them every third year, is this course,

- 1, Beans.
- 2, Wheat.

But in this course the beans must be kept cleaner than is commonly practicable in a broadcast crop ; they should, on every account, if possible, be drilled ; but in whatever manner the seed may be deposited, such lands ought never to be ploughed early enough in the spring for sowing beans ; they are commonly too wet and too saddened to go upon at that season of the year : they should be ploughed in autumn, and no spring tillage given, but the beans put in, whether by the drill, or by

the harrow, or by the dibbler, on that stale furrow. They should be kept absolutely clean, which is done cheaply, if drilled, and their stubble, when the crop is removed, thoroughly shimmied or scuffed, and the land ploughed once for wheat. This husbandry, ill performed, would, I believe, be at least as profitable as the present management; well performed it would very far exceed it. It is here thought an excellent husbandry, to turn sheep into the bean fields, to eat the weeds, in May, and till the crop is in blossom. Some material alteration should certainly be made in their bean culture, for I saw many wretched crops, and scandalously full of weeds; unfortunate seasons for this product may not be in their power to remedy, but to allow their land to be occupied by myriads of weeds, in blossom and in seed, is in their power to prevent. I saw some in Blisworth Field most notably foul.

Cabbages are cultivated, by some persons, for cattle, but on a small scale; they are, however, on the increase.

II. *Grafs.*

Two circumstances occur in the management of grafs land, which deserves noting: first, a practice which is gaining ground in this neighbourhood, in manuring; it is to spread the dung upon them in July, as soon as the hay is cleared. The right time

time of dunging is a question of importance ; it must either be done at this season, in autumn, or in the frosts of the winter ; objections bear against both these seasons. The frost of winter takes its full effect upon the manure, before the grass can reap any advantage ; and the effect of frosts on the volatile alkali, and on spirits, is to deprive them of their peculiar qualities ; the alkali loses its pungent salt, and the spirit its inflammability. The same effect must take place on dung, exposed to the same agent. The winter rains come also while the manure is too much exposed on the surface, and its virtues are washed from off the field, before vegetation is awakened by the sun. But in July, though a severe drought may possibly damage the manure, by exhalation, yet the probability of rain is great ; and if it comes, the quick growth of the after-grass shelters and protects it better, perhaps, than by any other means. In this case, however, I would certainly recommend, that this after-growth should be left through winter, to be fed in the spring, when the value of such food is extraordinarily great, and the dung, by means of such a covering, will be guarded against the frost, in the best possible manner. I have known the practice here mentioned pursued in other counties, with great success. The arrangement of the work of a farm, will not be impeded by manuring at this season, as it will not
be

be wanted to be performed till after turnip fowing is over*.

The other circumstance I meant to speak to, is an experiment of the Duke of Grafton's, of rolling down ant hills, instead of cutting them. I rode over a large pasture, which I should not have known had ever been infested with these hills, if I had not been assured that it was once covered with them: no other method was used than repeated rollings, with a very heavy roller. It may be useful to know, that this way will succeed, as it may be better adapted to certain situations and circumstances, than the more common process.

The greatest improvement of which this country, perhaps, is capable, is that of turning the innumerable and beautiful springs, with which it abounds, to profit, by watering their meadows, and by converting all the arable, below the levels of those springs, to meadow: many thousand pounds a year might easily, by this means, be added to the rental of the country, and much greater sums to the product of it. The Duke of Grafton shewed me two noble springs, one of which gushes out of the earth, on the side of a hill, near Blisworth, and the other rises in a farm yard, at Caswell, in Guns Norton; each of

* There is one point in manuring here, which deserves notice; lime is used, on sound good loams, for turnips; from twelve to twenty quarters per acre, at the expense of 2s. 10d. per quarter.

them is powerful enough, after the severe drought we have had, for so many months, to water many acres, if judiciously carried along the slopes of the hills, as high as the level will allow. There is, also, a small, but perennial, river, sufficient to water many thousands of acres, but no use whatever made of it. This is surely to be regretted.

III. *Live Stock.*

The principal and staple live stock of all this neighbourhood are cows; the milk entirely applied to making butter, which goes fresh to London, where it is sold by the name of *Epping*. Many of the dairies rise to 30, 40, and even 50 cows. The butter sells on an average at 9d. per pound clear at home; 10d. in winter and 8d. in summer. They send it pretty equally the year round. The grass is good enough for fattening large oxen, but butter, at this price, is reckoned a much more profitable produce. There is, however, a circumstance which is attributed to soil and the quality of the food, that deserves noting: whatever may be the breed of cows, and they have all breeds, none will milk late in life; all have disorders in the bag much sooner than in many other counties. The common breed is the long horned Leicester and Warwick: they are mostly bought in, but some are bred, and many more at present than formerly, especially for the
laft

last five years, in which prices have so much advanced; and they remark, that the cows bred here *come kindlier to the soil* than those bought in. The quantity of butter given by some cows is very considerable; for instance, 12lb. a week, for at least one in a dairy of 40; average of a whole dairy 5lb. a week the year round, for all that are milked. Gross produce 6l. a year each cow, including the calf, at 12s. 6d. at four or five days old. Pigs amount to 10s. per cow. In winter, all that are milked are fed upon hay, when dry on straw, till within a month of calving. There is no rule adhered to of keep after-grass for them, though so highly beneficial and valuable in the spring. The farmers who breed have their cattle of course in a succession; take for instance a dairy of 50.

47 Cows

3 Sundries.

13 Calves.

13 Two year olds.

13 Come into the dairy at three years old.

10 fattened and sold.

A circumstance not undeserving notice is, that wood lands have been found at Blisworth to give cattle the red water that feed on them.

Many sheep are kept; the Wiltshires are bought at Weyhill fair, and the Gloucesters at Banbury. The former are never folded; only the latter; the
western

western ewes are bought at three or four shear for 20s. or 21s. each; they are returned within the year, the lambs at that price; the ewe and the fleece 23s. to 24s. The Burford ewes are bought also at 20s. these are kept for stock, but *culled* every year; the oldest are fattened and the ram given to the *culls*, to answer the purpose of westerns; ewes of nine stone, about 27s. between Christmas and Lady Day.

The fleece of the Wiltshires 2½lb. at 22s. 6d. to 23s. the tod, those of the Burfords 5lb. at 19s. 6d. at present; last year 1s. lower. The tod is 29lb.; about Towcester they commonly employ sworn-winders, with whom the tod is 28lb. as refuse and dirty locks are picked out.

Breeding horses is not an inconsiderable article in live stock; in a team of eight, for two ploughs, there will usually be two mares kept, they are worked within a fortnight of foaling, but rested after for six weeks or two months, wean at Michaelmas, and the colts are then worth from 7l. to 12l. average 9l. It is common to sell at five years old, from 20l. to 35l. Generally put them to work at two years old, after which time they earn their living. In winter they are fed with straw, and a bushel of oats per week, in spring sowing hay. They do not use winter tares for foaling, which is a barbarous neglect.

IV. *General Œconomy.*

Under this head may be noted, 1, Farms ; 2, Rent ; 3, Stock and produce ; 4, Fences ; 5, Tillage ; 6, Rates of labour and provisions ; 7, Inclosure ; 8, Population.

Farms.

In the open fields the farms are generally small, usually about 7ol. a-year : these little occupations with which the Duke of Grafton, and other good landlords have patience in order to nurse up industrious families, are yet a heavy loss in repairs : and sometimes in other circumstances : inclosed farms rise to 3ool. which is the greatest ; there are but few of 2ool. to 25ol. In farms of a tolerable size, the tenantry are substantial, and it gave me great pleasure to find them with such confidence in their landlord, as to raise considerable erections on the Duke's farms at their own expence, in articles beyond the common demands of the country ; as a hay barn, &c. &c. and this while tenants at will ; a sure proof that they regard their landlord as their father and their friend.

Rent.

The general rent of the inclosed lands is 15s. to 18s. average perhaps 17s. or near it, tythe free : open fields subject to tythe, 8s. The rent of arable

ble land has risen within ten years about 1s. 6d. an acre.

Stock and Produce.

They commonly reckon 4l. an acre necessary for stocking farms: and that the produce of arable lands is about four or four and a half rents, with a fallow; and five or five and a half, without one.

I enquired particularly if the produce of the land, without paying any regard to rent, had risen of late years, and I was assured that it had considerably *in quantity*, as well as in price.

Land sells at 27 years purchase. Pays land-tax 2s. 6d. per pound, and rates 4s.

Fences.

The Duke of Grafton's considerable farm here is fenced in the utmost perfection. All done with white thorn hedges, so admirably preserved by posts with double and even treble rails, that not a head of cattle, of any kind, seems ever to have had a bite at them. They are set in double rows, and the growth is such as to form a spectacle pleasing to behold.

Tillage.

The lands of this country are all thrown up in the broad ridge and furrow, which is almost universal in the central counties. The success of the practice

practice depends on the attention with which they convey the water from the furrows; when this is effected, there is no better method of laying land; inconveniencies there undoubtedly are, but all should give way to effective draining, which can only be thus performed on truly tenacious soils. These lands are *cast* (ploughed down) for spring corn, and arched for wheat. They plough with four horses at length, and even five; price 7s. an acre. It is remarkable, that they very rarely harrow, except for couch-grass. It is seldom that they give an autumnal earth either to fallows or the land for beans; thinks it does no good; and the land never works kindly after it in the spring. But *quere* if this is not owing to going on it too soon in the spring? Fallows left till spring sowing is over, cannot sometimes be ploughed at all, as I have seen often on this journey: and for beans there should, on such soils, be no spring tillage.

The Duke of Grafton's steward, Mr. Roper*, who came from Suffolk, brought with him
plough

* Mentioning Mr. Roper, reminds me of an experiment he has made on cow-grass. In the spring of 1789, he sowed part of a field with red clover, and the rest of it with cow-grass *bought from Aylesbury in Buckinghamshire*, with barley after turnips. Both were mown for hay in 1790, the common clover giving the greatest produce, and rather the most after-grass. This year, 1791, both are fed, and the cow grass has yielded vastly more than the clover, and of a better quality. They are apparently of a decidedly different habit and quality; the cow grass spreads more on the ground;

ploughs for the horses to go abreast, but on trial he found it would not do, the land was too much trampled, the plough too short and unsteady. I have no doubt of this being the fact, for the common plough of Suffolk will not plough, in any soil, above four inches deep; if it is made to go six deep, there are few worse ploughs, for in that case the furrow is ill turned, and worse cleaned, and the draught required is great; but for four inches, in a soil not too strong, it is a good little tool. The ploughs of this country are by no means free from capital objections: the copse, or head, admits no variations of depth, done only by altering the traces, which is a barbarous defect; all the horses, except the hinder one, draw from the tuck of his collar harness, which is throwing a portion of the weight of all their draughts on his back, and is greatly increased when, for making the plough go shallower, the

ground; thicker; the stalk is solid, not pipy, and it does not run equally to blossom. The stipula of the *trifolium alpestre*, is lanceolated; of the *pratense* aristated; which I have been taught to esteem the decisive difference, as well as the running roots of the former: now, to all common appearance, these plants are the same, for I do not put much faith in a doubtful appearance of solidity in the stalk. Will some of my botanical readers pay some attention to this question, and give to plain farmers, the characteristic difference of these plants; and should there be none, which was the opinion of the late Rev. Mr. Laurents, a very able botanist, will they at least explain these certainly distinct qualities, of which duration is the most material.

ridge chain which goes over his back is shortened. The share is from four to six inches broad, yet the heel of the plough is ten to fourteen inches, consequently there are eight to ten inches in every furrow not cut, but only driven over by force; this explains the thistles, so common on many fallows: it was, in answer to this objection, replied, that they do not often plough a furrow fourteen inches wide, though the plough is of that width in the heel; but this implies a yet greater error, which is, tilting the plough aside, in its work, to raise the earth board, which narrows the furrow, it is true, but infallably rest-baulks the land, and makes of all other work the worst. The length of the beam and of the handles, are good points, but might be had with a better plough; the beam, however, is not so long as they are willing to suppose, for it measures not to its own end, where it unites with the handles, but to the heel of the plough. As the line of traction, formed by the horse's draught, ascertains the right length of the beam, it will be longer for horses that draw at length, than for a pair of horses that draw abreast; the length of the Northampton beam is, therefore, proper: the share fastens on in a stronger and firmer manner than in the Suffolk plough.

Labour, Provisions, &c.

Labour, in summer and winter, 10d. to 1s. a day, and small beer.

In

In hay time, 1s. 6d. a quart of ale, and small beer.

In harvest, 36s. the month, and board; one quart of ale a day, and well fed with meat.

Threshing wheat, $3\frac{1}{2}$ d. a bushel; spring corn, 2d.; oats, $1\frac{1}{2}$ d.

Making a dead hedge, very strong, and $3\frac{1}{2}$ feet high, $\frac{1}{2}$ d. a yard; making faggots, 3s. a hundred; felling trees, 8d. in the pound of the value of the timber; barking, 21d. or 22d. in the pound, value of the timber.

The wives and children all employed in lace making; they begin at six or seven years old; women earn, on an average, 8d. a day, some even to 10d. and 1s. It is a great object to all the poor; the trade is now very brisk, and the dealers have made much money for four or five years past.

Provisions.—Beef, 4d.—Mutton, $4\frac{1}{2}$ d.—Veal, 5d.—Pork, $4\frac{1}{2}$ d. to 5d.—Bacon, 6d. to 7d.

Butter, 8d. to 10d.

Hay, 3s. per cwt.—Straw, 20s. a ton.

Coals, at Northampton, $12\frac{1}{2}$ d. to $13\frac{1}{2}$ d. a cwt.—carriage, 10s. 6d. a chaldron.

Rent of a cottage, 20s. to 25s.—The Duke of Grafton never makes them an object of revenue, expecting only, that on the general account they repair and support one another; I found, however, other cottages letting at 35s. and 40s.

The state of the poor, in general, in this country is advantageous, owing very much to lace making. The following account will shew this, in the receipt and expenditure of a poor family, viz. a man, his wife, and five children, the eldest sixteen years of age.

Earnings.

	£.	s.	d.
Twenty-six weeks winter, at 7s. raised to that rate by taking work by the great, - - -	9	2	0
Five harvest, at 9s. - -	2	5	0
Four week's hay, going upwards (to- wards London), - -	3	3	0
Seventeen weeks summer, at 8s.	6	16	0
The son 3s. a week, and 16s. extra in hay and harvest, - -	8	12	0
The rest of the family, 2s. a week,	5	4	0
	<hr/>		
	35	2	0
	<hr/>		

Expenses.

Bread, half the year (winter), barley, and half wheaten, at 6s. 6d. a week, on an average, including baking, 4d. barm, 2d. and salt, 1d. -	0	6	6
Salt for other uses, - -	0	0	0 $\frac{1}{2}$
Bacon, 2 lb. a week, - -	0	1	4
	<hr/>		
Carry forward, -	0	7	10 $\frac{1}{2}$

			£.	s.	d.
Brought forward,	-		0	7	10½
Tea, sugar, and butter,	-		0	1	0
Cheese, half a pound,	-		0	0	2½
Beer (four bushel of malt, at 5s. 6d. and 3 lb. of hops, 3s.) per week,			0	0	6
Soap (half a pound in three weeks), and starch, and blue,	-		0	0	2
Candles,	-		0	0	3
Thread, half an ounce a week, 1½d. worsted, 2d.	-		0	0	3½
			0	10	3½
Per annum,	-		26	15	2
Rent,	-		1	15	0
Wood *,	-		0	12	0
Lying in and sickness,	-		1	0	0
Cloaths. The man's shoes	0	15	0		
shirts,	0	8	0		
stockings,	0	4	0		
hat, &c.	0	1	6		
jacket,	0	6	0		
			1	14	6
Family,	2	0	0		
			3	14	6
			33	16	8
Earnings,	-		35	2	0
Expenses,	-		33	16	8
To lay up, or expend in additional cloaths,	-		1	5	4

* If all bought, it would be 21. 8s.

Inclosure.

The advantages of inclosing to every class of the people are now so well understood, and combated at present but by a few old women, who dislike it for no other reason but a love of singularity, and a hatred of novelty, it would be useless to do more than generally remark that the rents and produce of all this part of Northamptonshire have increased greatly by this first of all improvements. The following table was made out some years past, by order of the Duke of Grafton, to shew an objection ill founded that had arisen against them on the idea that a new inclosure threw many persons on the parish.

NORTHAMPTONSHIRE. *Potterspury, inclosed 1776.*

The Amount of the Expence of the Poor for the three Years before the Inclosure.

	£.	s.	d.
For the Year, ending Easter, 1774,	201	4	6
For the Year, ending Easter, 1775,	175	12	0
For the Year, ending Easter, 1776,	187	0	0

The Amount of the Expence of the Poor for the three Years after the Inclosure.

For the Year, ending Easter, 1785,	187	1	1
For the Year, ending Easter, 1786,	237	18	8
For the Year, ending Easter, 1787,	188	10	10

The

	£.	s.	d.
The yearly value of Potterspury before the inclosure was about -	720	0	0
Valued on the inclosure, and now lets for about - -	1070	0	0
	<hr/>		

The old inclosures contained about 390 acres, and, on being valued at the inclosure, arose about 50l. per annum. The new inclosed part contained about 680 acres, and increased, on an average, about 6s. 6d. per acre.—The cow-pasture and sheep-commons, on which no particular rent was fixed before the inclosure, amounted to very near 100l. per annum.

Converted from arable to pasture about 150 acres; and from the cow-pastures and sheep-commons, about 30 acres is now arable.

October, 1787. The number of Inhabitants in Potterspury, without Yardley, are

Males,	-	-	277
Females,	-	-	329
			<hr/>
Total,	-	-	606
			<hr/>

*Population.***POTTERSPURY.**

	Christenings.	Burials.
1780,	28	32
1781,	31	27
1782,	26	25
1783,	32	22
1784,	31	24
	<hr/>	<hr/>
Average of five years,	29	26
	<hr/>	
Increase, -	3	
	<hr/>	
1785,	29	31
1786,	27	25
1787,	31	27
1788,	35	20
	<hr/>	<hr/>
Average of four years,	30	25
	<hr/>	<hr/>
Increase,	5	
	<hr/>	

As the number of new cottages, that have been built of late years throughout this country is very inconsiderable, the increase of people occasions their being more crowded in the old ones; which is also a general remark.

Whittlewood Forest.

But the most interesting object in the rural economy of Wakefield Lodge, is the forest of Whittlewood,

tlewood, which extends in length above 11 miles, but is narrow in many places ; and contains, by a rough estimation, near 7000 common acres. In it the underwood belongs, by a grant of the Crown, in the time of Charles II. to the Duke of Grafton, and his heirs male for ever, with the right of fencing out the deer and all commonable cattle, during nine years after cutting. The timber is reserved to the Crown, and fourteen parishes have a right of commonage for such cattle and horses (none of sheep or pigs) as they can support in winter. It would be natural to suppose such a right of more consequence than it really is : in 1789 there were found, by driving the forest, which is now done every year in three drives of Haselborough, Sholebrook, and Hanger, no more than 470 head of cattle and horses, which shews of what little value the commonage upon such a vast extent of land amounts to.

The commissioners for managing the landed revenue of the Crown are supposed to be employed at present on their report concerning this forest. I did not find, upon enquiry, that it had been viewed and examined by any person with so much care and accuracy as at all likely to preclude the few observations I have to make on it.

The ideas of these gentlemen may be pretty well collected from their seventh report, which, though on Salcey forest, more immediately has some remarks

marks which are applied to that of Whittlewood; these forests are but a few miles from each other. At page 9, of that report, it is remarked, that in James I. time there were in that of Salcey,

	Trees.	Loads.	Loads fit for the navy.
Oak trees,	<u>15,274</u>	34,366	
Ditto, in 1788,	2,918	-	3745
Other oaks,	8,266	-	7338
	<u>11,184</u>		<u>11,083</u>
Browse ashes,	<u>8,914</u>		

“ So that the timber fit for the navy was little more than $\frac{1}{10}$ of what it was in 1608, which small stock of timber remaining in 1783, is not accounted for by the selling of timber in the present century, — extraordinary diminution !”

As Whittlewood forest is an object, from its extent, of much greater importance than Salcey forest, it is to be hoped that these gentlemen will pay it another sort of attention, for the above remark is dashed off in a manner much too hasty to give the least satisfaction to any inquisitive mind. So far from there appearing to be any extraordinary diminution of oak, there does not in the above particulars appear to have been any diminution equal to what has taken place on all the private properties

ties of the kingdom. Here is, according to their own account, 11,000 loads of oak, and near 9000 ashes; these may amount to a total very different from that of a tenth. But it is remarkable that there are now 11,000 oak trees, and in 1608 only 15,000, thus the quantity of timber has been much more lessened than the number of the trees: this seems to prove that in modern times the oaks have been left far too thick, which has preserved *number* at the expence of *quantity*; and I am the readier to make this remark, because in numerous rides, which I took through Whittlewood forest, observing the oaks particularly, I noted them to be left vastly too thick, I mean in those coppices, in which government have not yet cleared all the timber of a good dimension, and which are all the coppices, except those from 16 to 21 years growth; in many coppices indeed the trees stand so thick, that I am confident the quantity of timber has been much lessened by it. It is not uncommon to see five or six trees with their heads all joining; but to have great timber, there ought to be a free current of air around the head of each; I surely need not remark that when the view is navy timber, the size of the trees should not be sacrificed to the purpose of keeping a great number.

When the improvements that have taken place since 1608, the immense increase of population, which must have thronged all the adjacent villages, and

and consequently the much greater number of cattle, turned by common right on the forest, are well considered, the decrease of timber here marked will, so far from appearing *extraordinary*, be thought remarkably small.

I am sorry to have occasion to observe, that these gentlemen do not seem averse from seizing opportunities of finding fault even upon points much too trifling to demand notice: at page 11, they say, “ the stools or roots of trees felled, which unquestionably belong to the Crown, are here taken by the keepers; the value of them when dug up, is from 1s. to 5s. each.”——“ to any one, who considers the natural tendency of such a system of management, it cannot be surprising that any property whatever should not prove very productive.”——When the reader is informed that at least half the value of these roots must be paid for the labour of grubbing them, I believe it will be generally agreed that by far the best application of them is to give them away, so as to make it the interest of some resident persons to take care that these roots should be grubbed. And why? Not for securing to the Crown the paltry value of 6d. or 1s. but for having such spaces of earth very well broken, to receive acorns that may produce future trees, an object, with a view to timber, worth attending to, whereas that of the mere value of the stump is con-

contemptible, and unworthy of the piece of censure that is tagged to it.

To mark this more strongly, I may observe that these roots are not cleared away till after the second year; and where only it has been seen, that they would not shoot out again. In this case, every intelligent person will perceive that in woods of two years growth the damage, which would accrue from the carting into them to get these roots, would amount to fifty times the value of them.

In some particulars the commissioners appear to have been too ready to listen to insufficient information; p. 10. they are informed, "that some of the browse trees (shredded or pollarded ones, trimmed periodically for the deer to browse on) are very large, sound, and fit for the service of the navy:" in consequence of this, above 100 were ordered to be cut in Salcey forest, none of which, or scarcely any, were found. Pollarded or trimmed trees sound, and fit for the navy!—Whoever will examine such trees, which I have done many thousands, they will be found either decayed from that destructive management, or the texture of the timber so short and brittle from knots, as to be of little worth for primary uses.

In the following passage, these gentlemen do not seem to have considered their subject with the requisite attention; p. 13. "It is the concurring information

formation which we have hitherto received of a gradual decrease in the quantity of growing timber, the prospect of a scarcity, and the danger of depending upon other countries for the support of our navy, which alone could induce us to recommend that government should undertake what we know to be so difficult as the management, protection, and improvement of woods and timber."

Now it is the scarcity, and consequent value, of wood and timber, which form precisely the reason why government ought not to attempt this ; which will be sufficiently clear to those who reflect that wood is destroyed by robbery and depredation exactly in proportion to its scarcity. One hundred and seventy years ago it was so plentiful, that even government itself, with all its waste and negligence, was adequate to the preservation of that which at present cannot be well preserved by the fostering care and attention of the immediate eye of the owner. In future, wood of all kinds will grow dearer and dearer, and at such a time to recommend to government to attempt the farming of oak can, in common sense, mean no more than the establishment of groups of officers to pocket salaries, for doing what is well known will never be done at all. Will the plundering poor regard forests, because the public property? Will not officers, in future, abuse their trusts, as well as officers in the past and present time? And will govern-

government, in time to come, be able to do what it never was able to do in times past—be careful and œconomical in the management of land?

But these gentlemen complain of the scarcity of oak. This complaint, as an argument, has, I conceive, no foundation whatever. If by it we are only to understand, that the kingdom having doubled or trebled its population,—that corn, and mutton, and beef, now occupy the land which once was incumbered by wood,—that hedge rows, instead of spreading two or three rods into every field, now are confined to the quick-set and the ditch,—if these plain facts only are in contemplation, the question may be dismissed in a moment, for all the world knows, that in proportion as a kingdom improves, wood *must*, lessen: we have just so much reason to rejoice that wood is scarce, as cultivation is more valuable in the scale of national prosperity than waste and forest. But if by this complaint, and consequent recommendation, any thing is implied, touching the price of timber being too high—or that the scarcity is greater than might have been expected—or that any steps should be taken to arrest the natural progress of improvement, by confining certain spots, by authority, to this production, which would otherwise submit in their turn to that amelioration which time carries throughout the kingdom;—in this case the proposition is a serious and a very mis-

mischievous one. Oak may be bought of other countries, but industrious men, fed by better products, cannot be bought. Of whom, nautically speaking; have you any apprehension, if not of France? But France is more *denuded* of oak (to use a *Johnsonian* phrase) than England itself, and builds her ships of war of foreign wood: if she therefore must go abroad for timber, surely we may do the same, on terms as advantageous.

But to all the purposes of fair argument, I contend that oak is not *dear*; and that all the scarcity (supposing there is any) that is feared, has proceeded from its being too *cheap*. There are few oaks in Great Britain, on a soil good enough to produce navy timber, but what at 150 or 200 years old, have cost the proprietors of the land, and the nation, the double of what they are worth. Apply an acre of land now to oak, and an adjoining acre to corn or grass, and which in 100 or 200 years will have paid most? The result (not difficult to calculate) would shew, that oak timber instead of being *scarce*, is not at half its fair price. Rough, waste, and barbarous countries, are the proper nurseries of timber: it is a produce inconsistent with a high degree of cultivation and improvement. To complain of its scarcity, is to reprobate national prosperity; and to propose, by any restrictions, such an application of the soil, is to prefer a product that pays 20s. to another that would

would yield 5l. Such speculations are very proper dreams for commissioners, who apply those years to making *reports*, which might be employed in dividing and selling forests,—but forbid it, policy, that they should be adopted by the legislature !

The plain result of all such enquiries will be, that for the production of any commodity whatever, there is but one system of policy adequate ; to leave it entirely to private industry, and private views ; and to let the only encouragement be a good price. In my opinion, there is no other want of timber in this country than what there ought to be, from the right preference given to other productions. If it was proper to encourage a greater growth, which can hardly be, there is but one way to do it, and that is, to raise the price considerably ;—6l. a load would not be adequate.

Whatever decision may, in the opinion of the public, be given to such enquiries, there can be no doubt of the propriety of converting all such forests to private property. I have already described the treble right there is in this of Whittlewood. The timber the Crown's: the underwood the Duke's, and the right of commonage upon the soil. This intermixture is equally mischievous to both. The timber suffers greatly; the young oaks, of only nine years growth, are eaten

up, barked, or trampled on equally with the underwood, so that none could escape if it was not for the thickets of blackthorn that here and there protect one; nor is this the only grievance, the timber is left so late in the coppices, as I saw to the end of July, when there seemed to be at least two months carting to do, that the teams must have destroyed many young standils, as well as done great damage to the underwood; it is sufficiently clear that better management would rectify this abuse. The depredations of the cattle and deer are not so easily guarded against; the growth of nine years is little protection against them, for I saw the bark eaten off plants that one would have thought secure; but cattle used to the forest have the art of bending down a bough by the neck till within reach of the foot, then treading on it till they have stripped it. Nothing can remedy such mischief, but making every property distinct; assigning to the parishes some portion adequate to their commonage; to the Duke of Grafton another, equal to his rights; and selling (not reserving), the remainder. In the division and sale of the Crown Lands, I conceive the great object is their conversion to the most profitable productions of which they are capable: provided they are cultivated to the best advantage, it is of very little consequence to the state in whose hands they are found.

Should

Should, however, the legislature listen to propositions that have only the production of timber in view, then it will be necessary in all such cases to transfer the Crown's right to its portion of the forest, on the division, to some private person (the ranger or principal proprietor), under covenant to deliver, after a certain number of years, a specified number of loads of oak timber, annually, for the use of the navy. Difficulties would arise in the method of doing this, and officers with a constant inspection must of necessity be continued in order to see that the succession of oak was always preserved; a sad business at best, and never to be depended on satisfactorily by either party. Under the present administration of the forests, or under that which is now hinted at, or any other but the mere attention of private interest, it is probable that the royal navy never did, and never will receive a tree worth 10*l.* that did not cost the nation 100*l.* So very incomplete is every project, but that plain and simple one of depending for the supply of oak on the price that will be given for it.

But to return—The soil of this forest, and of the country in general is well adapted to the growth* of most sorts of wood; and the copses, of which the

* I measured Wakes Oak in the forest, which is the ruins of a noble tree, 20 feet 3 inches in circumference, at 5 feet from the ground, and 25 feet 8 inches, at 2 feet. Ravens Oak, 16 feet 8 inches, at 5 feet. The Lawnhead Oak, 16 feet 6 inches.

Duke of Grafton has a great extent, are, notwithstanding the feeding of the deer, and the common cattle, valuable. The mode of felling them and the payment form the circumstance of a very eligible property. Nothing can be better adapted to save trouble than the methods used. *Washes* or glades are cut across the copse, at certain distances, and laid in a row, from which to judge of the contents of the whole. Wood-valuers are employed, who walk in the wash on each side of every cut, and note in their *view-book*, the value of each *cut*, that is each space of 10 poles long and 2 broad. From habit they acquire such dexterity that their valuation very rarely occasions any appeal from their judgment; and as much employment as an object to them of interest, honesty is their best policy, so that no suspicions are entertained of their integrity. The whole copse being thus marked into *cuts* and numbered and valued, every purchaser can be supplied with a lot to the value he wants; and the money is paid before he takes the wood away. They are cut, at the expence of the purchaser, at 21 years growth; and the value is various, according to the accidental depredations of the deer and cattle, the thickness of the plant, the soil, &c. but it may be stated at from 2l. 10s. to 6l. an acre. The value of such an estate to the proprietor is very great indeed; for here is not the hazard of a bad tenant in a century; no farm-houses, barns, or stables

stables to repair, nor any tythe to pay on the produce ; and the value of the crop rises pretty regularly every 20 years. In Mr. Cape's examination, in the *Seventh Report*, this rise is stated to be one-third in the memory of a man of about 50 : and he remarks that it is still increasing. But great as the value of such an estate is at present, the improvement of excluding deer and cattle altogether would be a capital one ; as appears by some copses where they are entirely shut out ; and the growth and thickness of such are duly proportioned to that circumstance.

The great value of woods in this country, will appear from a state of the sales of underwood and timber, for three years in certain woods of the Duke of Grafton's private property, which his Grace favoured me with, and which I shall insert here, as the management of the timber is not common, and merits considerable attention. It is to be noted that in these woods trees will not come to a great size, yet are very profitable to a certain growth, provided they are left with judgment, taking out all such as will not thrive well ; these copses are cut at 13 years growth, and the timber according to its thriving, at two to five *falls* of the underwood, that is from the age of 26 to 65 years ; beyond which age it does not pay for standing.

Sale of Underwood and Timber on the Duke of Grafton's Estates in Northamptonshire, 1789, 1790, and 1791.

A. R. P.				£.	s.	d.
1789—Seywell wood,	5	2	16	{ Underwood cleared,	30	0 2
				{ Timber ditto, -	70	13 6
					<hr/>	100 13 8
Grubb's coppice,	4	3	2	{ Underwood cleared,	21	18 3
				{ Timber ditto, -	82	18 0
					<hr/>	104 16 3
Plain woods,	12	1	34	{ Underwood cleared,	45	17 3
				{ Timber ditto, -	141	12 0
					<hr/>	187 9 3
Ashton wood,	6	2	0	{ Underwood cleared,	34	6 8
				{ Timber ditto, -	53	4 6
					<hr/>	87 11 2
1790—Seywell wood,	4	2	25	{ Underwood cleared,	14	17 7
				{ Timber ditto, -	40	17 7½
					<hr/>	55 15 2½
Grubb's coppice,	4	2	7	{ Underwood cleared,	30	5 9
				{ Timber ditto, -	52	6 10
					<hr/>	82 12 7
Plain woods,	12	3	5	{ Underwood cleared,	37	0 7
				{ Timber ditto, -	85	11 4½
					<hr/>	122 11 11½
Ashton wood,	8	1	29	{ Underwood cleared,	45	10 0
				{ Timber ditto, -	81	1 8
					<hr/>	126 11 8

A. R. P.				£.	s.	d.			
1791—Seywell wood,	6	2	6	{ Underwood cleared,			30	11	6
				{ Timber ditto, -			32	17	1½
							63	8	7½
Grubb's coppice,	6	0	4	{ Underwood cleared,			33	2	10
				{ Timber ditto, -			80	16	0
							113	18	10
Plain woods,	12	1	0	{ Underwood cleared,			38	3	6
				{ Timber ditto, -			132	6	6
							170	10	0
Ashton wood,	4	2	18	{ Underwood cleared,			19	3	1
				{ Timber ditto, -			66	1	2
							85	4	3

N. B. The tythe, which is paid in kind, and the expences of new fencing in the part sold, in the aforesaid sales of wood, are deducted from the underwood account. The usual time of cutting is at 13 years growth of the underwood.

Average of the whole 14l. 14s. per acre, for 13 years. This land pays, therefore, above 20s. per acre per annum.

A remarkable instance of the great produce of wood occurred upon the Ascot inclosure; 14 acres, a corner of the field over-run with rubbish, had so bad an appearance that none of the proprietors wished to have the allotment; the duke of Grafton did not object, and had it; it was carefully fenced, and half of it cut in eleven years; the seven acres sold for 63l. or 9l. per acre, or above 16s. per acre per annum, the first cutting, with a certainty of a considerable improvement as the copse thickens and is preserved.

These, and many other instances that might be given of the great profit of woodland *to the landlord*, must not induce any one to think that the national interest is equally concerned. To him the *gross produce*, and the *net profit*, are nearly the same thing; and 20s. from wood is better to him than 20s. from a farm; but the difference is immense to the public. The farm that gives 20s. rent gives from 12s. to 20s. more in profit to the farmer; from 20s. to 30s. and even 40s. to the poor in labour, besides the support of artisans, &c. All woods, therefore, in the eye of the public, should be considered as a species of waste; a productive waste, it is true, but not by three-fourths so productive as corn and grass.

How wood can answer so well as it does, is absolutely unaccountable, for the quantity in this country is immense, and the consumption not accounted for by the number or size of the towns, or by the population of the country. The prices are——

Cord wood billets, 8d. to 1s. per cwt.

Underwood faggots, 12s. to 15s. and 20s. per 120.

Brick kiln faggots *, 10s. to 12s. 6d.

Timber top and underwood of the same price.

* They have an æconomical practice, of burning lime on the kiln at the same time with bricks; to a kiln of 15,000 bricks, 40 quarters of lime are burnt.

Oak timber, 10d. to 2s. a foot ; prime pieces, for coopers, 2s. 6d.

Browse trees, 8d. to 9d.

Ash timber, 1s. to 1s. 6d.

Elm, 10d. to 1s. 2d. None in the forest, but very large trees in Wadden Chace.

Poplar, 8d. to 10d.

Bark, 5s. to 5s. 6d. in the pound on the value of the timber ; thus, tree 20s. bark 5s.

I shall not quit Wakefield, without remarking, that the duke of Grafton is, on the wet land of Northamptonshire, as good a farmer as he is on the sands of Suffolk. His fences are in the highest state of perfection ; his fields well laid down, and well kept ; excellent hovels are built to every close ; ponds dug to all : a variety of small and convenient farmyards, well inclosed with stone walls, and surrounded with cattle-sheds, properly disposed over his great farm for convenience, and every thing in that tight repair, and excellent order, which is as pleasant to the eye of a spectator, as it is useful to the interest of a proprietor. His great crop of hay this year, when tolerable ones are so scarce, proves how well he manages his grass lands ; and nothing can be better or neater made than his hay stacks ; if his neighbours would copy this circumstance, it would not add a little to the beauty of every landscape ; but at present they do not seem to think much difference of form necessary for a
dunghill

dunghill or a stack. Such a spectacle is much more to me than all the lawns, waters, and houses in England. I may however remark, for the use of such as love *seeing places*, that there is one feature at Wakefield Lodge equal to most in the kingdom; a lawn of delicious verdure, even in this drought, which may spread 500 acres, sloping to a water, of which it is sufficient to say, that it was formed by Brown; scattered groups of trees chequer the scene, and all surrounded, in every direction, by the shade of a forest impervious to the eye; not the poverty of a limit planted to *screen* and deceive, but the deep recesses, the umbrageous gloom, in which you may wander without boundary, and roam as in the wilds of America, did not numerous ridings cut in strait lines, and very neatly laid to grass, facilitate a passage to every part*.

July 31.—Cross the forest towards Banbury. Of these twenty miles, the first eight are in the forest, which may yield, perhaps, 10s. an acre; the next five are strong land, that lets at about 14s.; and the last seven a good red loam, from

* Such ridings answer the purposes for which they were made, and therefore it would be ridiculous to find fault with them, but to me they bring down the imposing effect of the forest idea, to the decoration of a park; if grass is introduced, it should be in broken and irregular lines; to be lost in the sinuosities of such, would be a merit adapted to the extent and wildness of the scene; a man should be able to find his way in a park, but not in a forest.

16s. to 20s.; the whole is inclosed; a great deal of it under grafs, with much cattle and ſheep. There are ſome fine views before deſcending from the high ground, over the rich vale around Middleton Cheney, and to Banbury. Enquiring of my landlord, at the Red Lion, about perſons curious in agriculture, he mentioned Mr. Goldby, of the town, for a driller: I ſent to his houſe, to requeſt ſeeing his crops; he was not at home, but his farming man ſhewed them; I found his beans and wheat good, but his barley among the worſt crops I have ſeen this bad year, and I found his man condemning the ſyſtem for barley, though very candidly admitting the merit for wheat and beans. After all the experiments that have been made, and premiums that have been given, the merit of the drill huſbandry is almoſt as much un-aſcertained, as it was in the time of Tull, which can be owing to nothing but the exceſſive and exaggerated praiſes that have been given it. But I am in the way to the prince of drillers, Mr. Boote, there all doubts will, I ſuppoſe, be removed. There is a practice at Banbury, and the vicinity, which I think an execrable one, that of tethering horſes on winter tares; the poor animal is depoſed full to fun and flies, ſtaked to a ſpot which he tramples till the ſoil is rendered as hard as a barn floor; the food is waſted, the field ſpoiled, and the horſe gets lean inſtead of fat. Croſs here the canal
that

that joins Oxford and Coventry, above 100 miles. Shares in this canal, for want of water, were down to 60*l.* and even 50*l.* This was a pretty loss to adventurers, sinking half their capitals, because these canal projectors, who never see any other difficulties than that of getting people's money, are mistaken in their calculations. Reservoirs were here provided and exhausted, and the barges last year sailing merrily on dry land : they were very near having the same spectacle this year ; but, by new exertions, things are coming about again, steam engines are built, or building, at the summit, three miles from Bransom, and about twenty from Banbury, for throwing back the water wasted by passing the sluices ; and, in consequence of this, shares are now got up to par. Undoubtedly the spirit of enterprize, the ardent, energetic, and daring attempts that are every day made in this kingdom, are glorious exertions, and do infinite honour to it. Success generally is commanded at last ; but this does not remedy the evil, to those who lose half their investments : this is a private affair ; individuals may lose, but the public is sure to gain. Coals, at Banbury, 1*s.* per cwt. 8

August 1.—Take the road to Stratford on Avon ; pass Wroxton, the seat of Earl Guildford ; there is one feature in the place which is very pleasing ; a lake, with a river, and a most noble accompaniment

nyment of wood. From a gothic temple, on a knole of land that rises in the valley, the water view is double, and very pleasing; the wood singularly umbrageous. Many of the trees are remarkably fine: I measured a beautiful beech, on which some fool has written R. P. 1780, it is seven feet four inches and a half in circumference, at five feet from the ground: also an ash seven feet four inches by another bent towards the top; both these trees are of a vast height. The house is situated in the most recluse spot that can be imagined; apparently calculated for that sort of retirement which forbids the entrance of ambition, or of any tumultuous passion that could invade the quiet of this sequestered shade: how perverse, that it should belong to a prime minister, who sought for happiness in levées of knaves and fools, instead of the society of his beeches, his ashes, his swans, his carps, and cows:—Which of these have proved ungrateful?

To Stratford there is much open and much inclosed country; at eight miles there is a great view of the plain from a hill, which commands an extensive prospect. Home pieces, inclosed, let at 20s.—others, 15s.—open arable, 10s. Much here is under the course,

- 1, Fallow.
- 2, Wheat.
- 3, Beans, &c.

Very

Very little clover. Perhaps the average rent all the way, may be 15s. as there is a good deal of red, deep, friable loam. The whole country in high ridges, and on many of the baulks bushes are allowed to grow, which give a beggarly and ragged appearance, and seem of no other use than for the sheep to hang their wool on. Much dairying, and many polled sheep. Great view to Bredon Hill, and across the whole county of Worcester, to the Hills of Malvern, in Herefordshire. In the twenty miles to Stratford, only one field of turnips, and in the forty from Wakefield, not above two or three.

Having never been at Stratford before, my feelings were awakened by the birth place of our divine poet; I hastened to the church, and could not but look around there to some antient tombs of Clop-ton's, whose wealth is recorded at this town; and to others more modern. Within the ken of Shakespeare's effigy is a marble dedicated to one Kendal, whose panegyrick is, that "rather than vote for the repeal of the penal laws and test, resigned his commission in the army and his seat in Parliament." A pretty subject of praise! that a man should consider bigotry and intolerance in the class of such sterling virtues, as to write them on a tombstone: that when we are gone to appear before the God of all religions, the spirit of persecution should be engraved on our marble, as the signal of merit,

merit, and the expectancy of reward. Let me note in my tablets the name, to see if none that wear it are in a list of Warwickshire justices. The greatness of the poet's genius is in nothing more manifest than in the predominancy of the interest that seizes the bosom at Stratford. If, instead of a Clopton and a Kendal, here were the remains of half a score chancellors, secretaries of state, or ambassadors. it would be more signally marked. Their manes would all be mob; we should turn from their splendid tablets with indifference, and rivet our melancholy regards to those of the divine genius,

Whose eye, in a fine phrenzy rolling,
Glances from heaven to earth, from earth to heaven;
And as imagination bodies forth
The forms of things unknown; the poet's pen
Turns them to shape, and gives to airy nothing
A local habitation, and a name.

I viewed the house which gave him birth, and was sorry to hear, that the Harts, its possessors, pulled down an antique porch about 30 years ago, which was, as they call it, old and ugly. The people seem in a very low state, and to have inherited little more than the poverty so often allied to talents. They shew the poet's chair in a chimney corner; Mrs. Jordan, of Drury-Lane Theatre, kneeling down, kissing this chair, and writing her name
on

on the wall, is become one of the chief anecdotes told by these people.

In the town-hall there is a very bad picture, by a very good painter, Garrick embracing the bust of Shakespeare, by Gainsborough : a much better of the poet in his study, by Wilson, given by Garrick. There is no other person perhaps in the *Biographia Britannica*, whose birth has shed such a lustre on the place of his nativity, as the deer-stealer of Stratford. Bacon, Newton, and Milton, were as great in their respective paths as Shakespeare in his : but they do not equally interest the universal feeling; nor have they had such commentators as Garrick to *impress* their merit on the hearts of millions.

Coals, 11½d. per cwt. lime, 2s. 6d. a quarter, 10 quarters are spread per acre, and much mixed with dung and mould. Land around the town is very highly rented; 50s. an acre for inclosures by parliament about 17 years ago. There are some drilled crops, but neither great nor clean.

August 2d. To Atherston upon Stour, to see the drilled farm of Mr. Boote, whose memoirs in the *Transactions* of the London Society gained him the gold medal, and who has been repeatedly named as the greatest and most successful driller in England; I have often declared that I am not yet convinced of the superiority of the drill husbandry, taken in its aggregate to the common or broadcast mode;

mode; but I am always open to conviction, and ever on the search for satisfactory experiment: it may be supposed, therefore, that I did not come out of my way many miles in order to view the farm of a gentleman, who had declared in public that sowing an acre of wheat, broadcast, would be the loss of 4l. to him, without expecting information of importance to myself, and highly satisfactory to my readers: Mr. Boote politely shewed me his farm, but expressing some dissatisfaction at any thing concerning it being made public, I left my notes with him (which, however; I had his permission to take before I used a pencil) on his promising to explain himself by letter. After I returned home I received one from him, in which is this expression, *relying on your honour not to publish my mode of husbandry.*

My readers will rest satisfied, after this, that I shall not publish one syllable more about a farm which has excited so much attention to drill ploughs, and drilling. The public will draw their own conclusions. Many of the crops are very fine.

From Atherston all the way by Stratford to Henley is through a lovely country; hills and vales all inclosed, and tipped with woods on the summits, backed by the mountains of Shropshire, Herefordshire, and Worcestershire. The soil al-

most every where a fine red friable loam, that runs to a thick turf of white clover and excellent grasses; the whole inclosed seemingly within 20 or 30 years. In which period such immense tracts of land in England have been as it were created anew by inclosure. Coals at Henley at 9d. and 9½d. the cwt.

The 3d. To Birmingham; land 18s. and 20s. an acre, for some miles, the fine country continuing, and all inclosed; but for eight or nine miles before Birmingham flatter, and not equal. Lime here 2s. 6d. per quarter at the kiln, and 12 used per acre on fallow for wheat: a fair common crop 20 bushels; 200l. a year reckoned a large farm. At six miles coals 8d. per cwt. four horses draw 45 cwt. 5 horses 53 cwt. and 8 draw 80 cwt. About half a ton per horse may be stated, as the common load. For the last three miles the country full of new villas in every direction, and many brick houses and cottages, all seem to date within 20 years, as nearly as I can judge by the colour and other circumstances of brick work and building. Whatever I see, therefore, has been erected since I was at Birmingham in 1768.

Seeing, as I passed, a house in ruins, on enquiry I found it was Dr. Priestley's; alighted from my horse, and walked over the ruins of that laboratory, which I had left home with the expectation of reaping instruction in—of that laboratory, the labours of which have not only illuminated mankind, but
enlarged

enlarged the sphere of science itself; which has carried its master's fame to the remotest corners of the civilized world; and will now, with equal celerity convey the infamy of its destruction to the disgrace of the age, and the scandal of the British name. The close of the eighteenth century, the period for giving lectures of high church and Sacheverel, passive obedience, non-resistance, and the sovereign efficacy to the hard-ware of Birmingham, of mitred fronts in courts and parliaments! These are the pulpit principles that have scrawled *Church and King* on all the barns and stables that I pass. These are the principles that instigated a mob of miscreants——I beg pardon; ——of “*FRIENDS and Fellow Churchmen, attached to CHURCH AND KING **”——to act so well for the reputation of this country.

Meeting here, by appointment, Mr. Bakewell, who being related to some gentlemen in the manufactory no time was lost; they had the goodness to shew me every thing I wished. The circumstance in the fabric which most excited my surprise was the small, or rather no use, that is made of water; in the town there are no mills; and the number in the vicinity, for the direct operations

* Called so in an address to the mob, while engaged in their plunderings and burnings, in the same hand-bill that speaks of the *King's laws*. May not that address be translated into plainer English, “*You are a set of honest fellows, engaged in a good cause—which, however, you have pushed a little too far.*” What a miracle after that the whole town was not plundered and burnt!

of the fabric, are inconsiderable; the number of little and distinct forges for works performed by a single hand, surprised me; I had conceived that machinery was carried much further in this fabric; they have some tools of beautiful invention, but which, to an inquisitive and reflecting mind, excites some degree of wonder that so many operations yet remain performed by the reiterated strokes of hand, given by a man in executing works that might apparently be abridged with the same ease as others, seemingly more complex. I saw no machines comparable to a cotton mill or a stocking engine.

The capital improvement wrought since I was here before is the canal to Oxford, Coventry, Wolverhampton, &c.; the port, as it may be called, or double canal head in the town crowded with coal barges is a noble spectacle, with that prodigious animation, which the immense trade of this place could alone give. I looked around me with amazement at the change effected in twelve years; so great that this place may now probably be reckoned, with justice, the first manufacturing town in the world. From this port and these quays you may now go by water to Hull, Liverpool, Bristol, Oxford (130 miles), and London. The cut was opened through the coal mines to Wolverhampton in 1769. In 1783, into the new mines of Wednesbury, and to the junction with the Coventry canal, at Fazeley, near Tamworth. From
Birmingham

Birmingham to the Staffordshire canal is 22 miles, and to Fazeley 15. In the 22 miles from hence to Wolverhampton only three locks: but down to Fazeley there are 44 locks; not one rivulet to supply water, and only 30 acres of reservoirs, the water coming out of the earth. At Ocher hills they have a powerful steam engine for throwing back the waste water: and in the whole extent one that cost 4000l.; another of 3000l.; another of 2500l. another of 1200l.; and yet another building that will cost 3500l. The first-mentioned works at the charge of 200l. for six months. The old and new cuts were executed at the expence of about 250,000l.; one mile where it is open to the depth of 44 feet 30,000l. for sinking only 18 feet lower than the original level. There are 13 locks between the port and Deritan, 8 feet 2 inches wide, and the boats 7 feet; to pass the 13 takes only two hours. Coals, before these canals were made, were 6d. per cwt. at Birmingham, now 4½d. The consumption is about 200,000 tons a year, which exhausts about 20 or 22 acres; it employs 40 boats, each 20 ton a day for the six summer months, besides 15 to 20 boats to Oxford, a new supply since the new cut. In the Wednesbury mines the coal is 10 yards thick, and in some even to 12 and 14, a thing elsewhere almost unheard of: a cubical yard they reckon a ton. Shares in the navigation, which were at first done at 140 per

cent are now at 1040. I was assured that shares in the Aire and Calder navigation are yet higher, even 100 per cent. per ann.

These immense works, which wear so animated a face of business, correspond well with the prodigious increase of the town, which I viewed to good advantage from the top of the new church of St. Paul: it is now a very great city indeed; and it was abundantly curious to have it pointed out to me the parts added since I was here. They form the greatest part of the town, and carry in their countenance undoubted marks of their modern date. In 1768 the population was under 30,000; now the common calculation is 70,000, but more accurate calculation extend it to 80,000, which I am told is the number assigned by Dr. Priestley. In the last 10 years above 4000 new houses have been built: and the increase is at present going on much more rapidly, for I was told that the number this year is not less than 700.

The earnings of the workmen in the manufacture are various, but in general very high: a boy of 10 or 12 years, 2s. 6d. to 3s. a week; a woman from 4s. to 20s. a week, average about 6s.; men from 10s. to 25s. a week, and some much higher; colliers earn yet more. These are immense wages, when it is considered that the whole family is sure of constant steady employment; indeed they are so great, that I am inclined to think labour higher at
Birmingham

Birmingham than in any place in Europe : a most curious circumstance for the politician to reflect on, and which shews of how little effect to manufactures is cheap labour, for here is the most flourishing fabric that was perhaps ever known, paying the highest rates of labour. Such an instance ought to correct those common notions that have been retailed from hand to hand a thousand times, that cheap provisions are necessary for the good of manufactures, because cheap provisions suppose cheap labour, which is a combination founded in ignorance and error. Provisions at Birmingham are at the same rate as every where else in England, for it is remarkable that the level of price at present is very general, except the division of the east and west of the kingdom for corn ; but while Birmingham and Norwich eat their provisions at nearly the same price (with allowance that the former is much the more quick, ready, and active market), the price of labour is at least 150 per cent. higher in one of those places than the other. Why then I enquire, what has provisions to do with the rate of labour ? If one was to form our ideas from a very enlarged view of all the great fabrics in Europe, we should be apt to think that a great and flourishing fabric could not subsist, either with cheap provisions, or with cheap labour.

I tried hard to pick up some data, on which to calculate the amount of the fabric, but difficulties

of various kinds prevented any accuracy in the estimation. In conversation with a very ingenious gentleman, who has written an able work on the town, and who was rewarded for it by having his house burnt down in the late riots, I mean Mr. Hutton, he informed me that ten years ago there were many estimates made with a good deal of care; and that on multiplied experiments it was found, that the returns per week, was equal to the rent per annum; including all the houses of the town on an average; all shops; all trades: the houses were then about 9000, and the rent 9l. each, on a medium; now the houses are about 13,000, and as I find, on enquiry, that the little houses, which have been built in such numbers for manufacturers, are let at 6l. 10s*. the lowest; 7l. and 8l. each; 9l. on a general average of rents must now be much too low; however let us call it no more than 10l. this would make the rental of the town 130,000l. a year, and the returns of all its trade 6,760,000l. per annum: out of which a very great deduction is to be made for all the trades and professions of common life, supported by the manufacture, but not composing it. If I should form any idea corrective of this, it would be that the estimate is carried too^d high: let us suppose the population 80,000, then there are about 40,000 males, of

* Near the canal there are ranges of workmen's gardens, 16 yards by 24, which let each at 2l. 2s. per annum; this is 23l. 5s. per acre.

these deduct 5000 not employed in the manufacture, remain 35,000; three-fourths of that number are of an age to be employed, or 26,250. Suppose these to earn, including manufacturers and merchants profit, 15s. a week, it amounts to 1,023,724l. a year. Of the 40,000 women 20,000 may be supposed to be employed, and to earn 6s. including, as above; the year's earnings will be 312,000l. in all 1,335,000l. double this, to include all raw materials, and you have 2,670,000l. for the amount of the manufacture. Now I am ready to grant, that here is a great deal of supposition in this estimate, but at the same time it is not altogether without data; and though the total may exceed this, possibly half a million, yet I think as much might be said to shew the calculation high, as to prove it low. It is true the ratio of the earnings is taken rather low, including, as it ought to do, the profit both of the manufacturer and of the merchant, which cannot well be less than 20 per cent.; but then the number of the workmen can scarcely exceed the supposition, probably not equal to it, 20,000 females, in particular are a high allowance.

There are some circumstances in the supply of this great market, which seem rather singular; garden vegetables come from Evesham, 30 miles off; and from Tamworth, 16 miles; there being very few gardens near the town. Corn is brought by land carriage from very great distances, such as
appeared

appeared to me almost incredible ; from Compton 50 miles ; and from Buckingham 56 ; it may be supposed that the carriage of coal back must be the principal inducement to such prodigious carriage. It comes hither also from the vale of Evesham. None is brought from Liverpool, nor any since 1782 from Hull. North of Birmingham the country consumes much more than it produces, and is fed very much from this town ; Dudley, for instance, is a better market than Birmingham ; Wolverhampton is chiefly supplied by Shropshire.

Upon these circumstances I have a remark to offer, which ought to be particularly interesting to Norfolk, Suffolk, and Cambridgeshire, three counties which are certainly to be classed among the cheapest corn ones in England. Of what infinite importance is it to make a navigation from Bury, in Suffolk, to Birmingham. Measuring on the map the following distances occur :

	Miles.
From Bury to Ely, by water, -	30
Ely to Huntingdon, by ditto, -	25
Huntingdon to Higham Ferrars, by land,	20
Higham Ferrars to Daventry, by water,	22
Daventry to the Coventry canal, S. of Dun-	
church, by land, - -	10
From that junction to Birmingham, by the	
canal, - -	30
	<hr/>
	137
	<hr/>
	Every

Every thing here mentioned by water is already navigable, I have no doubt, except the 10 miles from Northampton to Daventry ; and thus it appears that there are wanting no more than 30 miles of new cuts, certainly not more than 40, to connect the wretchedly cheap corn and dear coal market of Bury with the great demand of corn and supply of coals that are found at Birmingham. The people of Suffolk are eager for navigations to connect them with London, but let them remember that the numberless markets of Birmingham, and its vicinity, are, on an average, 30, perhaps 40 per cent. higher than London, and consequently an union with such a manufacturing region would affect our markets to a vastly greater benefit than any navigation to London could do.

The 4th. In the evening, quitted Birmingham with Mr. Bakewell, and reached Sutton Cofield. I was struck with surprise to find so much waste land in the vicinity of the vast manufactures I had quitted, nor is there any thing in the husbandry of these nine miles which allows, for a moment, a supposition of the fabrics of so considerable a town having had any effect in working improvements, which it must be confessed is a strange circumstance.

The 5th. Rode to examine some works carrying on under the direction of Mr. Elkington, a singularly able drainer, whom I shall have more occasions than one to mention. In this excursion, which

was

was entirely over great regions of land, absolutely waste, I had abundant occasion to be confirmed in the remark I made last night on the want of effect in manufactures to enforce cultivation. Here are at least 10,000 acres contiguous, which yield no other produce but that of feeding some wretched commoning cattle; for I was assured that we might ride to the extent of nearly 30 miles without quitting these contiguous wastes. All that I saw of them are highly and cheaply improveable. What a disgrace to the political institutions of a kingdom whose government, trembling lest the people should want bread to eat, are constantly encouraging the import of foreign corn and cattle, butter and cheese, and hides and wool, yet permit such wastes as these to remain, even at the gates of such a market as Birmingham! Are not such instances, innumerable in every quarter of this kingdom, continued and invariable proofs that British policy, in relation to agriculture, is not only deficient but mischievous? And does it not prove that the circuitous system of encouraging agriculture, only through the medium of manufactures, is a paltry vicious idea that tends, as it has actually happened, to perpetuate wastes even in the very smoke of the greatest fabrics! so little able is commerce to work improvements, when direct assistance is not immediately given to cultivation,

by

by the power of inclosure and the annihilation of tythes.

In passing over this great common of Sutton Cofield, we were conducted to a spring of clear water, famous for curing the itch, scorbutic eruptions, the evil, and other complaints; on enquiring why some house and other accomodations had not been erected near it, we were told that many applications with that view had been made to the corporation of the town, but always rejected, lest the throng of people in consequence, should be destructive of their game. A pretty motive! Can we wonder that no steps are taken towards inclosing these wastes?

One improvement in the neighbourhood, on land similar to these commons, but private poverty, I heard of, in which 2s. an acre rent was paid for 30 years, and 6d. tythe; at which rent the tenant inclosed and improved.

One portion of the common is under a very singular system; 600 acres are in alternate cultivation and common. Those who have *rights*, agree to cultivate this portion, which is divided into a certain number of lots, and drawn for like a lottery, those who draw the fortunate chances, may either cultivate the corresponding tracts of land themselves or sell the right to others: they were once very little valued, but now sell at 30 guineas for 20 chances; the arrangement is rather intricate,
and

and was not clearly explained : but these lots have been grubbed and marled only for four years culture; after which period they are thrown open, and become common again : I saw 100 acres of wheat thus temporarily inclosed, which will probably yield three quarters an acre : what a loss to the community that when there is such experimented profit in the culture of these wastes, yet that they should be allowed to remain a disgrace to the nation !

These commons of Sutton are the origin of a great number of springs, which being gathered into ponds from 10 to 20, 30, and even 60 acres each, by means of heads formed across the vales, are made such use of that there are eight water-mills, and yet not a drop of water that does not rise within the parish. The rent of these mills is about 20l. a year each, for which money they have the pool into the bargain ; a most cheap rent, as the fish alone pays the money.

The chief object of our ride was to view Mr. El-kington's works, who we were informed was engaged by some of the owners of these mills to bring them more water, by draining some boggy spots, from which the springs arise. We viewed his trenches for this purpose : it seems that this most ingenious operator had contracted with the millers to be paid only in proportion to the additional quantity of water he procured for them. As we viewed his drains, and
the

the general declivities of the wastes around, a question arose amongst us upon the possibility of procuring more water by any drains, or cuts, or boring, than flows already in a more diffusive manner through the bogs;—*except* by bringing water to take a direction on one side of a hill, which in its natural course flows out on another side. Mr. Bakewell was decidedly of opinion, that a spring cannot be choaked up by mud or bog, or any impediment; and that if an open cut is driven up to the spring head, no more water will issue from it than came in a different way before. I doubt that this is a question not to be decided by reasoning; but only by experiment, and reiterated observations. The extreme solicitude which I have often remarked in the Milanese, for clearing out the heads of all springs, which feed their trenches of irrigation, clearly proves to me that they are, from long experience, convinced that a spring kept clean, and freed from all weeds, mud, and filth, will run more copiously than if left so encumbered and impeded; they clear out the spot where it rises as clean as possible; and let into the ground casks to receive the water as it rises, and to keep off cattle from poaching and treading it. If we reason upon this practice, it should seem that they are right, even on Mr. Bakewell's principles; for if springs on hills are veins that communicate from side to side, or in any circuitous manner, one mouth may run powerfully, because others are foul and choaked up, and therefore

fore to give the 'freest current possible must be right. But Mr. Elkington's practice is remarkable in one circumstance, and differs from that of any drainer I have yet known. From distance to distance at the bottom of his furts, which are of various depths, from 3 and 4 to 6 and 7 feet, he bores with a common iron boring-rod 5 or 10 feet lower, and in doing this often finds the water rise quickly in the hole; by this operation it should seem that he has Mr. Bakewell's idea in contemplation; and it is to be noted, that by this practice he in many cases, by a single drain, lays lands dry that were not at all in the contemplation of the person who employs him, even to a considerable distance.

Supposing springs to lie in strata, nearly on a level, and to communicate from side to side of the largest hills, in such case it does not seem at all improbable but that, by draining and boring deeply on one side, you may procure more water than came before, by diverting it from the usual course; so that, by carrying on works of this sort on one side of a mountain, the other side, at some miles distance, may be drained. Thus the millers on one side of a hill may pay Mr. Elkington for bringing water to their dams, and the millers on the other side the hill prosecute him for depriving them of theirs; which, it must be confessed, would be a laughable litigation.

These

These, however, are no more than conjectures, and might easily be opposed by counter conjectures. It is not altogether clear that springs are thus easily to be diverted, if they have already an aperture or vent on one side of a hill, it should seem to be in consequence of the level determining the water to flow that way; but how, under this supposition, can boring perpendicularly into a ramification of that spring, change the fall which already put it in motion another way? Great difficulties occur in such a supposition; would allow the idea that springs are not so connected from one side of a hill to another, and that when Mr. Elkington bores in his surfs it is only to give a free vent to that water which had a more choaked and difficult one before: it may be remembered, that a circumstance not uncommon in digging wells seems to contradict the supposition of much connection between distant springs, and that is, water sometimes rising in wells with instant impetuosity on the men touching upon the course, filling fifty, sixty, and even seventy feet, so rapidly that the men have been in danger of drowning. Such facts imply water in a pent state, for it could hardly rise with such force if it had vent at various places. In whatever light the subject is examined, it will be found involved in too many difficulties to be easily cleared, and not at all the

easier, by recurring to the theories of Des Cartes, Mariotte, de la Hire, or our own Dr. Halley.

Such works, however their operation, causes, and consequences, have infinite merit, and do great credit to the talents of this very ingenious and useful man, who will have the merit, wherever he goes, of *setting men to think*. No inconsiderable step, and which leads to all sorts of improvements. Get rid of that dronish, sleepy, and stupid indifference, that lazy negligence, which enchains men in the exact paths of their forefathers, without enquiry, without thought, and without ambition, and you are sure of doing good. What trains of thought, what a spirit of exertion, what a mass and power of effort have sprung in every path of life, from the works of such men as Brindley, Watt, Priestley, Harrison, Arkwright, and let me add my fellow-traveller Bakewell! Who will tell me that the buttons at Birmingham are not better made because the tups around are better bred,—because locks and sluices are better constructed; and that woollen cloth will not be better woven because cotton is spun in the beautiful invention of the mills? In what path of life can a man be found that will not animate his pursuit from seeing the steam engine of Watt? It is the contemplation of great exertions—it is listening to the voice of well-earned fame, that gives nerve and vigour to our own endeavours—an active spring, a new movement

movement to our minds, and that instigates and brings into life and motion all the latent energies of our nature*.

These commons of Sutton Cofield might be made a country beautifully diversified, they contain considerable woods of oak timber (at present in litigation), which, though not of a large size, are objects of much beauty; a diversity of surface that varies the views, which with the numerous ponds and springs would form a very agreeable scenery. Great tracts might be converted to rich watered meadow, for after the long drought of the present season, here are several powerful streams. No sheep are pastured; only cows, mules, and horses.

Hence take the road to Tamworth, by Drayton Bassett, where we called to view the improvements carrying on in the farms, park, and grounds late belonging to the Marquis of Bath, but purchased, as it is said, by Messrs. Peele and Wilkes, for 138,000*l*. Pretty considerable off parts have been resold to Sir Robert Lawley, and other neighbouring gentlemen, but 3700 acres remain to be divided and improved; and it well deserves atten-

* Thus Dr. Johnson, on being told that a man rode three horses at once,—“ Such a man, Sir, should be encouraged: for his performances shew the extent of the human powers in one instance, and thus tend to raise our opinion of the faculties of man; he shews what may be attained by persevering application; so that every man may hope that by giving as much application. Although perhaps he may never ride three horses at a time, or dance upon a wire, yet he may be equally as expert in whatever profession he has chosen to pursue.”—*Boswell*, vol. 1. p. 215.

tion, that in the division of this estate full 1500l. a year might, by an injudicious or ignorant allotment, have been lost, as it would have been easy to give the stream to one person, and the lands below the water level to another; which shews, that in the division of estates, or allotment of commons, wastes, or forests, the greatest attention should be paid where there is a stream to throw that and the lands capable of being irrigated to the same person, that improvements of the highest consequence to individuals and the public may not be effectually prevented.

The improvements making in the farming line, are those chiefly of irrigation, and they are in a stile that render them one of the greatest objects to a farming traveller that is to be met with perhaps in this kingdom. A small river runs for a considerable distance through the lands; the levels have been taken by Mr. Wilkes, and canals cut large enough for the conveyance of all the water so high upon the declivities, that 1500 acres below the levels can be watered; an improvement of the most capital importance, for it is a very moderate calculation to estimate the rise at 20s. an acre rent. This, at 30 years purchase, a low price for an estate that pays no land-tax, amounts to no less a sum than 45,000l. May it not be asked, had all the stewards and agents the use of their eyes when in this country, among rivers flowing uselessly, yet capable of such immense deviations? who

who saw every day at Longleat the prodigious effects of water. A boggy bottom in the park is dug out in parts, and thrown into islands, which are planted with osiers, so that the whole, to the extent of several acres, shall produce either fish or plantation. Called at Mr. Astley's, at Drayton Bassett, who was so kind as to shew us a part of these improvements.

From hence we proceeded to Fosseley, a part of the same great property, purchased so ably and so fortunately for the promotion of commercial speculation. This is probably the first situation for an inland town that is to be found in Great-Britain, for here is the junction of the Birmingham and Coventry canals, which unite Hull, Liverpool, Bristol, and London. So that whatever may be the projects of active industry, here is all that communication can confer: coals under the whole country, offers, perhaps of all others, the most important advantage. Here Messrs. Wilkes and Peele have built a cotton mill, which is now in full work by day, but never by night, so the objection which has been made on that account to these admirable exertions of human ingenuity do not hold here. This situation is so favourable, in relation to communication, plenty of water, cheapness of coals*, and cheapness of labour†, that Messrs. Peele and Wilkes may reasonably hope to

They are not, however, quite so cheap as at Manchester.

† Only half the nominal price of that place.

be the founders of a new town on this centre of all the inland navigations of England; Tamworth is but a mile distant, with an equal command of water and an unemployed poor, a cotton mill, and a printing one are there erected, and other establishments of the same complexion forming, which will in a few years give a new face to the whole neighbourhood. In the evening reach that place, where the people are fond of the idea of by and by rivaling Manchester, and speculative visions are rising in their minds, that they are better situated for a great manufacture than that town. They have between 2500 and 3000 people, and had once a tolerable fabric of narrow cloths, but declined so much that there are not 20 looms left. The manor and antient castle, which frowns upon the town with feudal antiquity, are the property of the Marquis Townshend, who brings in a member here; Mr. Peele (in consequence of buying the Marquis of Bath's estate) is the other.

The 6th. To Ashby de la Zouch; called in our way on Mr. Marshal, to view a bog of several acres, drained by Mr. Elkington, which he effected with his usual success. This bog was occasioned, as they commonly, or rather always are, by springs, which he pierced into by a deep drain, boring at the bottom of it, as above described, the surf in this dry season runs no inconsiderable stream. The whole is now under oats, a very fine crop on land, which before was of no value whatever.

At

At the Queen's Head, at Ashby de la Zouch, dined with various spirited breeders and graziers, besides Mr. Wilkes and Mr. Bakewell, there were present Mr. Paget, Mr. Creswell, Mr. Green, Mr. Lee, &c. Among gentlemen who pursue their business with so much success, it may be supposed that the conversation was not uninteresting. I have but one fault to find, and that is their not drinking *THE PLOUGH*; a generic expression, which includes their favourite tups and bulls.

Walked to the ruins, which belong to Lord Rawdon, they are very extensive, and would have enjoyed from an antiquary the attention which I must give to other objects. Rents, for ten miles around Ashby, may be calculated at more than 20s. an acre, perhaps 22s. 6d. and the whole county of Leicester 16s. 6d. or 17s. The quantity of lime used through all the neighbourhood is considerable, but I could meet with very few well ascertained cases of its having been decisively useful.

The 7th. To Measham, where Mr. Wilkes shewed us his many and great improvements; the manor and estate he purchased some years ago of Mr. Wollaston, of Finborough, in Suffolk, for 50,000l. The buildings erected and erecting will speedily change the face of it. Here ⁶are two cotton and a corn mill, two steam engines; many weaving-shops, and a number of cottages built; a large and handsome inn, which is to be the sign of

tup, for Mr. Wilkes is a breeder, and a farmer on no slight scale : a few of the old thatched hovels remain to shew what this place was ; what it will be may easily be conceived. But what is done here in ten or a dozen years by one man, who has been at the same time engaged in many other great undertakings, who, in union with Mr. Peele, is giving a new face to Fafeley and Tamworth, cannot but make any one from the Continent admire at the wonderful exertions active in this kingdom——and in this kingdom only, for there is nothing out of it in the manufacturing world that is not, comparatively speaking, fast asleep. Indeed this is not the only contrast, for to come from Suffolk or Norfolk hither has much the same effect. All the activity and industry of this kingdom is fast concentrating where there are coal pits ; the rest of it has but one object, which is the cultivation of the soil, and to open, for a market, as immediate a connection with coals and manufactures, by means of inland navigations, as possible. If all the various monopolies of wool, and woollens were removed, and sent, where they ought long ago to have gone, to the devil, the rest of England might have flourished, by means of that fabric, and the poor have met with that support they have a right to look for.

Mr.

Mr. Wilkes's husbandry is as interesting as his manufacturing establishments. The greatest object is irrigation, above 400 acres being floated; as his method of performing this operation is new to me, and not touched upon in Mr. Boswell's ingenious treatise on watering, it will be necessary to explain it particularly, which I shall do the readier, as it is of all other methods of watering the most simple.

By a spirit level, he first examines and stakes out the very highest line to which the water can be conducted, from the spot where the stream enters his property; he cuts a canal in that line on the slope of each hill, which canal is at the same time a fence and may be planted with quicks; the water is let out of this at pleasure, if the cut is large, into a small parallel floating trench, but if the cut is small the canal is itself a floating trench, and made so truly on the exact level, that when full it overflows equally from end to end. Thus the water of the stream, by a sluice-gate being let down, is forced in the canal along the highest possible level; consequently there is a space, more or less considerable, between that level and the bed of the old stream. The best way of proceeding is to throw down all banks, and fill up ditches in this space; to make the new canal the fence, and to convert to grass immediately (should any of it be arable) all the land within this level.

The next operation is to mark out exactly, on
the

the dead level, parallel lines, from 20 to 40 yards below each other, according to circumstances, particularly the slope of the land; and as this accurate level must be kept, it follows of necessity that these lines will be zig zag, and varying in their directions according as the declivity of the land varies; and the same observation is applicable to the canal above these. Along these parallel lines are to be cut trenches, from 12 to 18 inches deep, and as much wide: they are to act as drains for conveying off the water, when the meadow has had enough; for it must be obvious that if a cut or ditch is made across them in any direction, *with* the slope of the land and down to the river, that the trenches would, if no means were used to prevent it, convey the water as fast as it came, and the land, except the upper division, would receive none; but in every trench there is a little sliding sluice-gate, near the cross cut or ditch, which being put down the trenches fill, and the whole of the land receives the water; but on the contrary, when the operator thinks enough has been given, or he wants to work the water on other grounds, then drawing up a sluice-gate in his canal to let the water flow in it at pleasure, and at the same time all these little gates, every drop is drawn off the ground, and it is left sound, without any hanging or soaking water.

In this method of irrigating, which is so simple that it can hardly be mistaken, there is a power of variation

variation at will, by making the parallel trenches alternately floats and drains, and conveying the water diagonally backwards and forwards *.

These explanations of this method of watering are principally applicable to slopes tolerably regular; with very small variations in the planning, the method applies, without difficulty, to all slopes; hollows there may be out of which the water must be kept, into others it may be conveyed, and drawn off by drains marked for the purpose. The intelligent reader will catch the *principle* of the method, and he who is used to form or examine such works will apply that principle to any slope that occurs.

Before I quit the subject of floating, I shall mention here a thought that struck me on viewing one of the steam engines, erected by Mr. Wilkes, at Measham. The great wheel of one of the cotton mills is turned by water, which is not in sufficient quantity to keep the wheel going; to remedy this, the engine is erected below to throw back the water into the mill dam, by which means a little water is made to do a great deal. The engine raises it 18 feet perpendicularly, and so considerable a quantity to the eye, that I conceived the idea of applying this immense power to the irrigation of land. Upon the application, the height, and the power, there could be no doubt, the only question was the expence? I mentioned to Mr. Wilkes my project, and en-

* I did not see this executed, but that it might be is obvious.

treated him to give me particularly the charge of one of these engines; the following is the result:

Old engine $8\frac{1}{2}$ hogsheads at a stroke, and 8 strokes in a minute. Power of Mr. Watt's improvement, as 10 to 7; old engine 3 tons of coals in 12 hours, Mr. Watt's 2 tons, not quite the double for 24 hours, at 2s. 6d. a ton. Price of erecting the engine 500l; interest of which 10 per cent.

Labour and attendance, 2s. for 12 hours. Wear and tear of repairs, &c. 4s. or double the labour; must stop for those repairs about 1 month in the year.

From these particulars it will be easy to calculate the quantity of water raised in a year, and the expence.

	l.	s.
Interest of 500l. - -	50	0
Labour and attendance, 4s. a day	62	8
Wear and tear, 8s. a-day -	124	16
Coals, 1344 tons a-year, at 2s. 6d.	168	0
	<hr/>	
	405	4
	<hr/>	

The quantity of water raised in a year by the new engine is 47,141,200 hogsheads; which, at the expence of 405l. is about 120 hogsheads for $\frac{1}{4}$ d. (409l. would be just in that ratio). The prodigious effect of this engine, the most astonishing of all the exertions of human invention, more especially Mr. Watt's

Watt's improvement, cannot be better exemplified than in this calculation; by which it appears that 120 hogsheds of water are raised 18 feet for one farthing. It deserves notice here, that the power respecting the quantity of water raised, is in the ratio of the height, it raises 120 hogsheds 18 feet for $\frac{1}{4}$ d. it therefore raises 240 hogsheds 9 feet for the same money.

For the use of different situations, I shall note, that if coals, instead of being 2s. 6d. are 15s. a ton, the expence is then about trebled; and 120 hhd's. will cost $\frac{1}{4}$ d.

Having thus ascertained the expence of raising water; the next enquiry was, how much water will irrigate an acre of land? In this journey, on another occasion, I had an opportunity of coming near this very curious and difficult fact.

A stream was measured with great accuracy, which ran 39 hogsheds in 24 minutes, or 97 in an hour or 698,400 in 300 days, allowing 65 for frosts, &c. call it 700,000 hogsheds. Now this stream, by various calculations, estimates, and observations, compared in the result with each other, and properly combined gave, as one common result, the annual value of 50l. free from, all expences of preparing and floating the land, &c. which for 700,000 hogsheds * is 2d. and about $\frac{1}{4}$ d. for 120.

If

* It will be sufficiently obvious that the advantage will be in proportion to the poverty of the land: on very poor soils the water forms

If 700,000 hogsheads of water are worth 50*l*. then 47,141,200 hogsheads are worth 3367*l*. which is the return per annum, by watering, free from the expence of preparing the land : which expence, however, must be in hand and ready on such undertakings ; and it evidently appears from the greatness of the sum that the tract of land must be large to yield it ; consequently that this part of the capital must be considerable, for instance from 3000 to 5000*l*.

But when the expence of raising 47,141,200 hogsheads is only 405*l*. with cheap coals, and 1245*l*. with them dear, and that the water is worth 3000*l*. it must be sufficiently clear, without calculating the per centage, that in any situation the benefit of applying steam engines to this use is clear and decisive. I never heard this application of them mentioned, or even thought of ; and I cannot but esteem the proposition of considerable importance towards the improvement of great tracts of country, where water is plentiful, but raising it difficult : I think particularly in the fens of Cambridgeshire, that immense fortunes might be made by converting them, by this means, to watered meadow. „Turf is in the utmost plenty, so as to

forms almost the whole value, and the profit of course is vastly greater ; but the estimate was made for lands already of considerable value ; it supposes a man in possession of the land, and his neighbour offers to sell him the stream, it is worth 50*l*. a-year, besides the expence of preparing and floating the land.

equal

equal coals at 6s. and 7s. a chaldron, and in some places much cheaper. This would serve the steam engine, and lands now to be had *fee simple*, at 10s. or 20s. an acre, presently made worth 40s. *per ann.* But it is the misfortune of this kingdom, that the speculations of moneyed men are so rarely turned to land, yet they might make more by it than by any other branch of industry; Mr. Wilkes has done more, and with more exertion than any one I know, but the instances are miserably rare.

The next feature in Mr. Wilkes's husbandry, and not less interesting, is that of *burning*. He conceives, and I believe justly, that the application of *fire* is as little understood in agriculture as that of *water*. I found him ploughing and burning an old rough pasture. It is well known that in the common method of paring and burning, the slice or furrow is taken as thin as possible, from half an inch to an inch, or an inch and half; two inches are reckoned thick; but Mr. Wilkes contends that as much as possible should be burnt; and therefore ploughs 8 or 9 inches deep, and burns the whole furrow, the burners following the plough immediately without any drying; a cross ploughing given, for cutting the flags into pieces. It is however necessary to explain this, because in common situations it could not be done, the furrow would not burn without drying, and hardly with it; but this is all a coal country, spread with the shafts of pits

pits working, or that have been exhausted; and there are every where heaps of what is called *fleck*, or coal rubbish, which burns tolerably well, after a heap has been kindled, with about half a peck, or a peck of common ordinary (not saleable) coal. With this important assistance of coal and fleck for every heap, the furrow burns well, as it falls from the plough: the heaps are made to the size of about 30 or 40 bushels in each; and the immensity of ashes may be conceived by the space between the heaps, not exceeding a yard and half, or two yards. The expence of burning is 1l. 5s. 8d. per acre; to which must be added two ploughings each, with 4 or 5 horses, and 2 men; also the coals and carriage of the fleck; perhaps the whole, with spreading, &c. may amount to 4l. an acre, and at that rate very cheaply done.

Indeed it is so great, that last year Mr. Wilkes from 17 acres burnt, mowed 80, and yet left a sufficient plenty of ashes. By means of the advantage of coal and fleck he burns all the year. It must be apparent to every one, that such a method cannot be pursued in situations where fuel is not in equal plenty. But the hint may be useful in any situation, not to fear paring as deep as can be burnt. In conversation with Mr. Wilkes on that subject, I enquired into his opinions upon that question, and into the facts on which he founded those opinions. He is convinced from the experience of many
years

years that burning, in any judicious method, for instance in any heaps, not exceeding 50, 60, or 70 bushels, perhaps 100, does not *waste* the soil in the least, which is the common apprehension; that this partial calcination does no more than break the texture of stiff soils, by reducing all the vegetable particles to wood ashes (an excellent manure) and expelling a great quantity of water; that by exposition to the atmosphere, after the operation, the land reabsorbs its water, and by the great immediate fertility, fills itself presently with more vegetable particles than it had before. And he added, that whether this reasoning was or was not just, yet the facts he had observed were such as justified the conclusion. Above 30 years ago, his father burnt, at Overseal, exactly in this manner, a field of 10 acres, which was not then, and has not since been treated with any more favour than the fields adjoining, yet it has ever since retained a superiority; and in his own practice he has found the practice uniformly beneficial after several years. I must on this remark, that the safe way of acting in all such cases is to crop tenderly, and by that method insure the duration of the benefit; grass is every where the most important object, and rendered every day more and more important, by the repeated operations of government on the corn laws, tending to no other point than that of reducing the price: at the same time grass secures in the

soil that degree of fertility you have given it, and even keeps it constantly increasing. The vast importance of laying to grass, is no where better understood than in this country, as well as the prodigious improvement it works, even in the corn crops. More than half Measham, Ibstock, &c. are laid to grass since the inclosure, and yet send more grain to market than ever they did before. At Heather, Oakthorn, and Appleby, more than double. Such are the astonishing improvements wrought by inclosing and converting to grass! But in the new inclosures there is no such thing as a fallow, whereas all the open fields were fallowed.

In carriage, Mr. Wilkes is as singular, respecting his neighbours, as in any other circumstance; he uses Irish cars, on an improved construction, and one horse only, with which he finds that he can move earth, ashes, bricks, &c. much cheaper than by any other conveyance*. One horse has, for months together, drawn in one of these cars† 160 bricks, each of 14lb. this is a ton. What tumbril or waggon used in such work ever did the same, provided 3 or 4 horses are harnessed in the same carriage?

* I have myself carried this practice much farther than any person I have met with out of Ireland, for I use nothing but one-horse carts for every purpose; for hay and corn in harvest, as well as for dung, earth, &c.

† They are about 5 feet square, and 1 deep; the wheels 2 feet diameter, and *under* the car, as in Ireland.

In

In brick-making Mr. Wilkes has made a very great, and, since the tax, a very obvious improvement, which is considerably increasing the size; he makes them of various dimensions, for different purposes, some to $22\frac{1}{2}$ inches long, but all of double the size of common ones; with these bricks he builds his cotton-mills, steam engines, weaving shops, and his numerous houses and cottages*; by means of which he is filling this country with industry and population. They are burnt in various forms; some of unequal breadths, for forming arches without mortar; other semi-circular, for placing together to form circular columns, &c. &c. One use of his arch bricks pleased me very much; in pits and stone quarries, or on the declivity of a hill, he makes cow-sheds and hog-sties, all of brick and arched at top, with brick standings and mangers, two cows being tied in each arch; above is the hay stack, and a brick stair-case down to a passage behind the mangers. The hog-sties in his farm-yard are equally well contrived; the fer-

* These cost 25l. and are let at 30s. a-year: which answers both to the landlord and tenant. A comfortable well-built brick cottage for 30s. which is 50 per cent. less than in Suffolk, &c. for a clay hovel; coals for almost nothing, instead of roaming to break hedges; and constant employment at high wages by cotton, instead of starving by spinning wool;—What an enormous contrast! and how much do these eastern counties want the superintending energy of active statesmen? How much do they want something more than idle and expensive amusements?—viz. canals—cotton-mills—irrigation—&c. &c. &c.

vants walk from the dairy and the kitchen on a neat piece of grafs plat, which extends *over* the hoggerie, confifting of arched apartments, on which earth and turf are laid ; hoppers are placed in tunnels that defcend below to the troughs ; and thus they are fed without going near them ; the fties open into the farm-yard. In another range of fties by the corn-mill, arched alfo in the fame manner, water is conducted through at will, to wash them clean, and then thrown over a meadow. This I cannot approve of, for the land which immediately receives it is over-manured ; or if conveyed further it is too much diluted, and a great deal is loft. From 60 to 100 hogs, commonly kept here, would, in a yard well covered with marl or earth and constantly littered on, make manure enough for 50 or 60 acres of land, that would retain the benefit during 5 years, an object vastly beyond washing the fties over a meadow.

The great privilege and happinefs of this country is its plenty of coal, which is found every where. The colliers earn great wages, 2s. to 3s. 6d. a-day, befides their coal gratis, to the amount $3\frac{1}{2}$ cwt. a week in fummer, and $4\frac{1}{2}$ cwt. in winter, except 4d. a week charged them for the carriage. Price of coal $3\frac{1}{4}$ d. per cwt. and of the coarfe furface coal 3s. a ton ; which is burnt in the fteam engines, and for other ufes. The pits are drained by thofe engines, and the water brought from them Mr.

Wilkes

Wilkes has, for experiment, thrown over some meadows ; the benefit, in some instances, has been visible, but not tried long enough to be able to be quite ascertained ; it is strongly impregnated. This trial, though not decisive, may serve to shew that those who can get water need not be nicely solicitous as to its qualities.

With the immensity of Mr. Wilkes's business, in so many different pursuits, he is far from neglecting other branches of farming, besides that of irrigation. He is a member of the Leicestershire tup society, which have entered into articles of association with Mr. Bakewell, and with one another, for the better promotion of that amazing traffic in rams, which is here found a solid benefit, and elsewhere laughed at as a visionary romance: he has had one of Mr. Bakewell's high-priced rams ; breeding with the same spirit, that he himself works cotton, opens coal pits, and waters meadows. In his arable management he is very spirited ; and is, from attentive experience, an advocate for Mr. Cook's drill, having some very good crops put in with that instrument. In a word he sums up the pith and marrow of good husbandry in these four points, 1, water ; 2, fire ; 3, Bakewell's sheep ; 4, Cook's drill.

The 8th. Mr. Wilkes accompanied us to Over-seal, where his brother has an experiment that merits attention ; a very fine piece of wheat drilled

at 1 foot, after forward turnips, which were fed off and the land not ploughed at all, but only scuffled to prepare it for the wheat: returned by Alfby Wolds, a tract of land absolutely waste of 2500 to 3000 acres; much of it cold land, with many rushes; some of it hilly. Take our leave of this spirited improver, and passed to Odstone, where Mr. Astley was so obliging as to shew me his stock, particularly Lady Washington, a cow bought at the sale of the late Mr. Fowler, of Rollright, for 194l. 5s. and esteemed by many persons, before that sale, to be the finest cow in England. I took some of her dimensions, on account of the *proportions*, but by no means for size, as that is no merit, and a cow not worth 20l. may be much *larger*. From center of hip to hip, 2 feet; this is a most extraordinary breadth; it is a great space where the meat is most valuable. Width across the rump about 5 inches; below the spring of the tail 1 foot 2 inches; breadth of side 2 feet 4 inches; length from the centre of the shoulder 5 feet 2 inches; largest girt 8 feet 2 inches; ditto on the chine 7 feet. The proportions to be noted are the width from hip to hip, being so near that of the side, approaching to half the length, and $\frac{1}{4}$ th of the largest girt. Her colour is red, with a white-streaked back; it may not, perhaps, be useless to observe, that the finest cattle that are to be found in every

every breed in the kingdom are red, or varieties of that colour.

Mr. Astley shewed me at the same time a few of his sheep, in the manner which sheep are shewn in these breeding counties ; that is to say, a few parcels, half a dozen in each, which are *prepared* sheep, in high order, and much fatter than any are to be found in many counties of this kingdom. Upon this subject of exhibition, I shall by and by make a few observations. Here we viewed some *shear-bogs* ; two shear-rams, wethers, &c. In feeling a few of the finest individuals (I should observe that Mr. Astley lets every year at considerable prices), I was desired to take notice of the *knick* ; this is an indenture along the vertebræ. If a Norfolk sheep is examined, the bone will always be found to rise *ridge* like ; instead of this ridge the new Leicester sheep are now breeding to have a *furrow* there ; which is called the knick ; seeming, in this instance and various others, to be formed in a manner as contrary as possible to the Norfolk model ; they are indeed so totally the reverse, that if Norfolk sheep are good, Leicester must be bad ; and, *vice versa*, if Mr. Bakewell has exerted himself to raise a bad sheep, Norfolks must unquestionably be good ones. This knick should not take place over the chine, as in that case the flesh is apt to be too muscular ; but right to be fat *above* the shoulder ; not in the thigh, nor heavy there. In all this

business of breeding, *assertions* are endless, and you look in vain for experiment. This point has been attained but very lately, but it is now considered of so much consequence, that a tup that does not possess it, will lower in his value on that account (all other points equal) some hundreds of pounds for his hire in a single season.

Mr. Astley is curious in his breed of pigs; I measured one 14 inches wide behind, and 16 across the chine, and 3 feet long holding that breadth.

At night reached Mr. Knowles's, at Nailstone.

The 9th. View Mr. Knowles's live stock. I particularly admired a three-year old bull, bought when a calf, in 1789, of Mr. Fowler, out of Young Nell, and got by Shakespeare*. He is in general form beautiful, and feels perfectly to the satisfaction of the most skilful hand; breadth across from hip to hip, 1 foot 11 inches; across behind, below the setting on of the tail, 1 foot 3 inches; length 5 feet; girth 8 feet 1 inch; hind leg girth, at the smallest, 6½ inches; Mr. Knowles does not let this bull cover under 25 guineas a cow.

Another, a flirk bull, got by Garrick, from hip to hip 19 inches; and 12 wide behind. A four-year old cow, 18 inches wide in the hip, and 12 behind. Another cow 20 inches in the hip.

* For an account of Shakespeare, see Mr. Marshall's Rural Economy of the Midland Counties. Vol. 2, p. 323. Young Nell sold at Mr. Fowler's sale for 126l.

Mr. Knowles's sheep are very beautiful ; several of his tups have the knick, and that round fullness in the bosom, and fatness in the fore-flank, for which the Dishley stock are so justly famous. Mr. Knowles has 400 acres, and about 400 sheep, the wethers of which, at two years old, come to 26lb. a quarter. Land for five miles round Nailstone lets at about 20s. an acre.

This gentleman is a member of the new tup society ; and as many of the articles in the Roll-right sale were bought in by him and company, I desired, among other things, to see Brindled Beauty, the famous cow, got by Shakespeare, which sold for 273l. Mr. Bakewell, laughingly, told me she was in a coal pit ; by which I was to understand that she was not to be seen, nor any person to know where she is. This gave rise to a little debate upon the propriety of that conduct ; and how far it was really calculated to *serve the cause*.

On one hand it was urged, that if a breed of cattle was really superior to all others, and the owners of such breed were well persuaded of such superiority, it seemed to be manifestly for their interest to have the very best individuals examined ; merit undoubted must be merit unquestioned and acknowledged ; and the more clear and decisive the superiority, just so much greater the propriety of having it seen, and so much the more probable its efficacy to take place in rivalling other breeds.

In

In answer to this it was observed, that the merit of a breed cannot be supposed to depend on a few individuals of singular beauty : it is the larger number that must stamp their character on the whole mass : if the breed, by means of that greater number, is not able to establish itself, most assuredly it cannot be established by a few specimens. To keep from common examination the few, may, therefore, be no more than justice to the many.

In reply — Such justice may be, in fact, a great injustice ; for instance, we yesterday viewed Mr. Astley's cows ; if we had not seen Lady Washington, I should not have been strongly impressed with any peculiar excellence in the breed. Seeing her, I must confess it rivals other breeds of which I have a very high opinion.

The instance you have named is pointedly against you in the argument. If Mr. Astley had not shewn Lady Washington, you might have thought well of his other stock ; the moment you saw her, you held the rest (comparatively speaking) cheap : why then shew one cow that is to lessen 20 others in value 500l. to the eye ?

For this reason, if there was no other, to avoid the appearance of mystery and concealment, which injures every cause.

If it is the pleasure of those gentlemen who wish to see our stock, to attribute to views of mystery the

the common precautions which we think necessary to our business, the fault is theirs, not ours.

But liberality demands——

Not so fast, Sir.—Who has a right to demand what you are pleased to call liberality? We are, like other men, engaged in a pursuit by which we hope to advance our own interests; if by liberality you mean public views, we consider ourselves as serving the public exactly in proportion as we serve ourselves. How can we serve ourselves so effectually as by pushing our breed to the highest degree of excellence possible? That also is the way to serve the public. But have you said one word to prove, that ten thousand people seeing Brindled Beauty would render the calf she produces an iota less valuable? To suppose that any circumstance of management would alter the *real* value, would be absurd; but what others may call the *ideal* value, is *real* to us.

But, Gentlemen, in no other part of the kingdom is there any of this secrecy, mystery, and what some persons call humbugging; why, therefore, should it be here?

If in other parts of the kingdom they have not been able, by a different conduct, to raise their bulls to the value of as many shillings as we have pounds, it ought to follow, that our conduct, call it what you will—humbugging, if you please—has been right, and their's has, so far as this argument

gument goes, been wrong; and for this plain reason, that without high prices there is not an equal inducement to spirited exertions and unceasing attention. No men in the world will exert themselves equally to breed bulls that *sell* at 10l. as to breed those that *let* at 100l. Thus if humbugging raises the price, it gives, at the same time, merit to deserve it.

The conversation was spun to a greater length; but these touches of it will explain the steady and well reflected principles on which these breeders conduct themselves: and impartial men, who have not the husbandry of *gentlemen* in their heads, will confess that they are right. Gentlemen, educated in habits of liberality, are fond of disseminating what they think for the public good, and give away what others, in a different line, will sell as high as possible. A very little attention to the careless and inattentive manner in which these things are bred, or kept, or formed, or managed, that are given away, or, what is much the same, sold for low prices, must convince one, that such a conduct, however liberal, is not at all calculated to insure excellence; and that nothing, among the mass of mankind, is ever highly valued, that is not measured by a HIGH PRICE. In most of the breeds of England, out of Leicestershire, the best animals are to be bought at little more than a beef or mutton price;

price: in such a *ratio*, excellence is unattainable; and those measures, let them be ever so artificial, that tend to raise the prices, are the first and most essential towards improving the breed: without this, every effort will be vain;—and with it, none will be ineffective.

Mr. Elkington has been employed by Mr. Knowles, to drain the slope of a hill poisoned with springs; in every instance of his draining, I hear some new circumstance, to prove the sagacity and ingenuity of this useful operator, who may be termed an engineer of a new order. The crown of the hill above Mr. Knowles's wet fields is all dry, sound, gravelly land, in which no signs of springs, because pervious to water in its level; but when these springs came to the fields in question, which are clayey, they rise to the surface proportionably to the quantity of clay which impedes its progress; in this case, he found, by taking the levels, that springs on the other side of the hill in a clayey spot, at the distance of some hundred yards, were exactly on the same level as these passing under the gravel on the elevation, and thus breaking out where the passage was obstructed, by variation of soil. And he pronounced, that when this is the case, one surf, skilfully marked, will drain a variety of different and even far distant fields; and he recommends, in such cases, to wait, after the first drain is made, to let its operation

ration take place, for six months, or even a twelve-month; in which time it will be found, how far the effect has taken place: if more are wanted, they can then be made. When springs are brought in this manner from a distance, there is no doubt but he brings more water to a place than flowed in it before. The great skill is to know where to bore. The surf, or trunk bricks which he uses, are 8s. a thousand more than common ones.

To Mr. Paget's, at Ibstock, another member of the tup society, whose stock, both bulls and tups, I had great pleasure in examining. He has a bull in particular, of the Rollright breed, that is of singular beauty. His sheep are in high form; in a word, he is one of the Bakewell family, that has, with great skill and exertion, assisted in pushing the common cause to that wonderful perfection to which it has arrived at present. At dinner, Mr. Paget had collected a numerous company of capital breeders to meet us; among others, Mr. Buckle of Normanton, who stands high in the tup society. The conversation was entirely upon breeding, and on the best methods of promoting the good cause. The propriety was urged of taking some steps, more than had hitherto been taken, to introduce the breed of the new Leicestershire sheep into those counties where they had not yet been able to establish themselves; and among other methods,

methods, that of lending rams gratis, and selling a few good ewes at high prices, provided persons could be found who were willing to buy them. It was with pleasure I found, that to give the use of tups to a few persons possessing flocks in those counties, in which the Leicester breed was not establishing itself, under the condition, however (a very reasonable one), of their making a fair comparative experiment, was very generally the sense of the company; in regard to selling ewes, there was a difference of opinion; some of the gentlemen present thought that it would be a right measure, others had a contrary notion.

In its favour it was urged, that the breed could make its way only by being known, and the higher the perfection in which it was examined by its opponents, so much the more likely would it be to make its way. By only letting rams, which are of course put to ewes better calculated to raise bad than a good stock, the time must be very far distant before such a sort would be had in those counties, as should strike the eye of every unprejudiced observer. Whereas this time might be much accelerated, if those who hired rams could also buy some culled ewes; and the moment consequently would sooner arrive when such counties, at present rejecting the breed, would be brought to admit its superiority.

In answer to this it was contended, that the Leicestershire breeders, who had associated themselves

selves into a company, having for the chief basis of that association the superiority of their stock, could scarcely wish themselves in a better train than at present. Their tups going every year into fresh districts, the demand increasing, and prices rising rapidly : that in such a situation they ought to be content, and by no means urge or push a market, whose natural progress is so favourable, that the breed being unquestionably superior to all others yet known, must inevitably make its way, sooner or later ; on merit alone, therefore, they ought to rely, and not venture on so dangerous a method as that of parting with ewes, the greater merit of which, while the best rams are let, is the only security of retaining that superiority of which they are in possession at present.

On the other hand, it was answered, that being content with their present situation, while a better was attainable, with more exertion, was not a principle well calculated to command the greatest possible success. Supposing tups now let at a thousand guineas, could any reason be produced why they should not rise to five and even ten times as much ? The time was lately, when an hundred for the hire of one was thought as extravagant, and as much beyond the reach of common ideas, as the largest sum could be deemed at present. What has raised the price so greatly, but the competition of three or four counties ? Why then

then if the competition of three or four counties has had this effect should not the competition of 30 or 40 counties carry the stock to that height, which every one knows can only be attained by the most extensive competition; consequently the sooner you establish yourselves in new districts, the sooner that day will arrive. That in regard to the danger of parting with ewes, the apprehension seemed absolutely imaginary; they were the masters what ewes they would part with; and it was certainly in their power to sell *culls*, which would have great effect in pushing forward their friends in other countries, without the least danger of being rivalled, retaining, as they certainly would retain, ewes so much superior to those they fold.

To this it was, on the other side replied, that if the breed could establish itself only by means of selling ewes, the question would at once be decided; ewes certainly ought to be sold; but when it is considered, that by hiring rams every year you presently banish almost the whole of the ancient blood, which is done nearly in five years; for calling the whole blood (the ram) 100; and the no blood (the ewe) nothing; you have 50 the 2d year; 75 the 3d year; $87\frac{1}{2}$ the 4th; and $98\frac{1}{2}$ the 4th: thus in five years your ewes are deficient only $1\frac{1}{2}$ per cent. and facts well known justify the calculation. Thus Mr. Culley of Northumberland, merely by hiring rams, is now in possession of some

very valuable ewes, which give him the lead in the North; and Leicester at present reaps the advantage, for two gentlemen from that county, instigated by Mr. Culley's success, have come up this year; a case in point, and which proves that the business goes on in the right train, without selling ewes.

On the other hand, it was contended, that the instance now given of Mr. Culley, so far from proving the strength of that argument into whose service it has been pressed, proves in fact directly against it. Mr. Culley has been a dealer for rams in Leicestershire above 20 years, so long has it taken him to establish his breed so well in Northumberland, that it is to say, to form good ewes (for rams in the hiring system are always at command), that it is only this year that others have been induced to come to the Leicester shop. Hence we may, from this remarkable fact, draw one clear conclusion, that a rivalry and competition are not to be expected at a distance, but by means of good ewes.—While Mr. Culley had only good rams none of his neighbours were induced to come to the spring-head; but as soon as he gets good ewes the superiority of the breed is established, and that competition arises in a distant county, which brings the Leicester breeders into play there. What is the evident conclusion? Clearly, that these 20 years might be considerably shortened, by
 establish-

establishing one or two breeders in every county, well at first, by selling some culled ewes, as well as letting tups: by this means the breed would sooner gain ground, and Leicestershire would the earlier reap the benefit.

The argument ended, as arguments usually do—neither party convinced; but much was said on both sides worthy of attention. My own opinion was, on this occasion, as on all others, to spread good things at a good price.

In the evening accompanied Messrs. Bakewell and Honeyborn to Dishley.

The 10th and 11th. Employed highly to my gratification among the celebrated live stock of this Prince of Breeders; in viewing once more his operations of watering, which he shewed me himself, and in examining, with Mr. Honeyborn*, his arable management, Mr. Bakewell leaving that branch of the business entirely to him.

The principal feature of the arable management is, the winter provision for cattle, in which cabbages make the chief figure; Mr. Bakewell was always a considerable cultivator of this plant, and Mr. Honeyborn continues to pay equal attention to it. He has got the best stock I have seen and raises some quantity of seed, having been so often and repeatedly applied to for it, that he was either obliged to give this attention and expence, or refuse

* Mr. Bakewell's nephew,

more applications than he wished: however, to pay himself in some measure for this application of time and attention to an object to which he does not wish to give it, farther than for his own use, he sells the seed at 24s. a lb.; I was glad to hear of this, being well persuaded that it is the only circumstance which can give any probability of this estimable cabbage, being valued sufficiently to be preserved. Every day I am more convinced that the world pays attention to nothing so much as *price*. If Mr. Bakewell gave away those tups, which he lets, as the world says, for 1000 guineas, what would be the consequence? No other than a mutton value would be fixed upon them, and he would scarcely be cold in his grave before the breed would be absolutely lost for want of care; but by fixing an immense price upon them, they are solicitously and anxiously attended to, and will, by the progress of improvement, owing wholly and absolutely to price, be carried to a perfection of which perhaps we have at present few ideas. It is the same with seeds, with tools, with every thing that ought to be valued—not given away, but sold as high as possible. Whatever the thing is, it will then be regarded, and more good will result from one person that so buys, than from an hundred to whom given. These observations, of course, are not applicable to transactions among the higher classes

classes of life; but this remark rather confirms the doctrine; in those classes things of this sort are given away; *but not race-horses*; and note—for it deserves attention,—that there is nothing else amongst those classes managed with so much skill, or carried to such perfection.

Mr. Bakewell's crops of cabbage are very great; estimated at 40 tons an acre: most I saw on his farm were, for so dry a year, very promising, and some pieces remarkably fine; the largest, by far, are those sown about the 12th of August, pricked out at Old Michaelmas and transplanted, to remain from the middle of February to the middle of June; the spring sown plants were none of them equal to these, nor will arrive at half the size. But here is a new method followed, which, if mere size of cabbage for forward use is the object, seems to exceed all others; this is to transplant the August sown plants at Michaelmas, directly where they are to remain. Mr. Honeyborn has a field this year managed thus; it promises to be of use for a few acres, but would not do by way of a system, for but little land can be fit at that season for plants: it would do well on a piece of tare land, dunged and ploughed ready for the purpose, but in such a case the cabbages, a fallow crop, are substituted instead of wheat; whereas in the more common methods they prepare for corn; the objection, however, when a few acres only are in question, is nothing. Carrots

also are cultivated at Dishley with success, even to thirty tons an acre, here are this year 12 acres, and 20 of cabbage.

Mr. Bakewell and Mr. Honeyborn are both steady friends to Mr. Cooke's drill; have many acres drilled with it, and the crops are good—they think them superior to others upon the same land broadcast, both good; his drilled wheat I think the best; I have doubt as to the barley. His turnips are also drilled, and his management of a field this year capital; it was under winter tares drilled, which were fed to the middle of May, then part was ploughed for turnips, and part only scuffled, and both drilled at 18 inches: I viewed them, and think the turnips rather better after the scuffle than after the plough, and the land in equal order: this is a great object, for there is no comparison between the expence of scuffling and ploughing; from various observations made in different parts of the kingdom, combined with experiments on my own farm, I am inclined to believe that a great deal too much ploughing is given to land, and that many operations would much exceed it in killing weeds. Mr. Honeyborn's scuffle is on Mr. Duckett's plan, but improved by setting the shares springing forward in an angle of 45 degrees; and made much stronger than Mr. Duckett's. On a third and small part of the same field the tares are

are now standing, for a crop of feed, after being spring fed, and are well podded.

Another remarkable experiment in scuffling was for barley after turnips carted off: the land was ploughed late in autumn, and in the spring part of the field only scuffed, and part of it ploughed for barley; the crop better after the scuffling than after the ploughing.

I have, on two * former occasions, given an account of the irrigation of Dishley: it is, however, performed with such intelligence, and executed on such sure principles, that no person wishing to be a master of the subject can study it too much. Those who have been accustomed to examine watered meadows, know that the greatest difficulty is in watering lands level, or nearly so: to give a necessary *motion* to the water; and especially to spread a small quantity over a given space of land, is a difficult business. In one of Mr. Bakewell's meadows, this is executed with great fertility of invention, and with the happiest success, by directing the progress of the water diagonally across the field; by which means, in the meadow in question, a better fall is gained, and consequently the water is in quicker motion than if it was allowed to spread more directly from float to drain.

* Eastern Tour; and Annals, vol. vi. p. 452.

In regard to the quality of the water used, Mr. Bakewell unites in opinion entirely with Mr. Wilkes, that it is a question of the least possible consequence—a man must use such water as he has; and this he may do with confidence ninety-nine times in an hundred, for he knows of no instance in which any sort of water, judiciously used, has been prejudicial; and if Mr. Wilkes has been able to use the strongly impregnated drainings of his coal pits to any advantage, we can hardly doubt the truth of the doctrine. Gypsum proving highly beneficial as a manure, must silence all nice enquiries into the quality of waters;—whatever you have got, *that* use.

Since I was before at Dishley, Mr. Bakewell has made a considerable improvement in his sluiceways; he had them formerly, as in common, in one piece, formed of several boards—but they were apt, by warping, to be difficult to draw, and out of order; he now has every board distinct, to let down one on the other, so that a boy can draw up or let down, and just for that quantity of water wanted.

Mr. Bakewell has this year an experiment on the effect of watering preparatory to tillage, which deserves noting. He watered a piece of ray-grass for two years, except a corner of the field which had no water. This year he ploughed it for oats, the crop remarkably fine (not less than eight or nine

nine quarters an acre) except on the corner not watered, where the crop was very inferior; the result is remarkable, and proves clearly that watering, while under grass, acted as a very powerful manure.

Water-mills are, of all other things, the greatest impediment to irrigation, insomuch that I have heard a person in this country jocularly say, he would never paint the devil in any other colour than white; a miller being, of all other animals, that which does most mischief to the farmer. Before, however, the Dishley mill was in other hands, Mr. Bakewell contrived to make use of every drop of water possible; he made a wear in the mill-dam, to take the water off when the miller wanted to draw up the gates, which suited both parties; he had the use of the water, and the mill-tail was kept lower than it would otherwise have been. This thought might be executed at any mill.

Upon lands level, or nearly so, which are much the most difficult to water, Mr. Bakewell is much inclined to think the best, and certainly the safest way is by ridge and furrow; in which method he has much done. The lands are ploughed by gathering towards the desired form and about 11 yards wide; then with a most simple and ingenious tool he sinks the furrows and raises the crowns of the ridges, and finishes the levelling with great exactness. This machine is made like a wheelbarrow,

barrow, held by a man and drawn by one horse ; it has no bottom, only edges ; the hinder of which only rests on the ground ; it is armed with iron, and scrapes the land along, till over the spot where wanted, then the man lifts up the tool, and drops the earth, which is driven along, not carried, as in some tools more complex. When the ridge is formed, the floating trench is cut along the crown, and the drain in the furrow ; the water has just the degree of motion desired, for its velocity will be exactly proportioned to the declivity given to the ridge. I have seen many meadows watered thus in Berkshire.

Before I quit the subject of irrigation, I should mention a very ingenious machine for raising water, invented by Mr. Chatterton, watchmaker, at Derby, a model of which I saw at Mr. Bakewell's. It is a wheel turned by the stream, the water of which is taken up by four pumps, worked by an alternate motion, given by the rotatory one of the wheel, so that two of the pumps are always at work. I wrote to Mr. Chatterton to desire to know the power and the expence ; he was so obliging as to inform me, that it raises nine hogsheads per minute nine feet above the river, with three feet fall on the wheel ; expence, 130 guineas for the machine, free from digging, or any building that might be chosen over it. Suppose the annual charge, by interest of money and repairs, to be

be 20l. a year, which is the utmost, and that it works 10 months in a year; the expence of raising the water six feet (three are at command, without expence) is 200 hogsheds for a farthing. It must be obvious that gaining six feet in the levels of an undertaking of this sort may enable the irrigator to throw water over a great additional extent of land, in case the slopes of the country are gentle, or tending to a flat. It is very easy by taking the levels to discover how many acres six feet will give the command of, and to calculate to exactness the profit for watering on an average of all sorts of land, may be reckoned an addition of twenty shillings an acre.

But the great object at Dishley is LIVE STOCK. I have in other papers dwelt so much on the sheep, that it would be tedious to enter into particulars anew; in order to avoid mentioning what has already been noted, I shall confine myself at present to some circumstances in the tup business, new in it, having arisen since I was here before.

The first is the establishment of what I have mentioned more than once, a *tup company*, of which Mr. Bakewell was the projector, and may be called the head; sixteen of the principal breeders (I did not understand that any very capital ones are left out), among whom are Messrs. Wilkes, Paget, Buckle,

Buckle, Knowles, &c. have formed themselves into a society, for generally promoting the spirit of breeding, and for submitting mutually to certain rules for the better conduct of the business. In what I am going to add concerning this body, I must speak without direct authority; for, upon the subject of high prices, and other points, the most interesting, the members speak with remarkable caution: however, the enquiry is too generally interesting to the farming world to suffer me to be idle. I made enquiries of those who had not equal motives for silence, and I was assured of the following facts:

That the first day this society assembled, they offered Mr. Bakewell an annuity for life, secured on all their joint properties, of FIVE AND TWENTY HUNDRED GUINEAS A YEAR for his five best rams annually; and that Mr. Bakewell refused this offer.

That Mr. Bakewell let three rams this year (1791) for THREE THOUSAND GUINEAS.

And, in confirmation of this, I was told, on very good authority, in Northamptonshire, that eighty ewes were covered by a ram of Mr. Bakewell's, at ten guineas each, or eight hundred guineas; and as one hundred are the common number for a tup, this is in the *ratio* of one thousand guineas per ram.,

That

That a breeder, a member of the society, in 1790, let a ram for five hundred guineas, got by one he hired of Mr. B. *

That, by the rules of this tup society, Mr. Bakewell is obliged to give the members the choice of his rams; and bound from letting any under 50 guineas; the rest of the members under 10 guineas.

That, by the same rules, all fixing prices is precluded. The tup master does not *ask* a price, the hirer *bids*.

There are many other rules unknown, and a general agreement to advance money in a certain ratio, for any expences or projects of common benefit. It is said, that they laid out a thousand guineas at Mr. Fowler's sale; and that the articles bought in the name of Messrs. Knowles and company were on their account.

The establishment of such a society, and the

* Such circumstances at once explain the motive for giving such high prices; and they explain also the incomparable spirit of breeding in these counties, in which the disciples are able to tread so closely on the heels of their master, and yet are confessedly utterly unable to pass him. On this subject, Mr. Bakewell himself says, "they every year rise a peg, and their pegs would soon be higher than mine if I stood still; but we must contrive, that my peg moves as well as theirs;" as they have the same rams, this must be chiefly by Mr. B. having the best ewes. An obvious method is, to reserve every year *privately* the best ram for himself; this, however, is not suspected: and the frequent absences of Mr. B. from his farm, would, notwithstanding all precautions, render it very difficult to effect in *secret*.

prin-

principles on which they conduct themselves, are interesting subjects that deserve consideration. I have heard it represented as a knot of monopolists, associated to humbug the public. That if the stock, cows, and sheep are as good as they are pretended, they stand in need of no associations, but will make their own way well without them; that all monopolies are bad, and that this society is plainly one; that raising the price of rams to such an enormous, preposterous, and incredible height was always thought a matter of deception; but the establishment of a society for the mere purpose of raising prices, will yield an additional conviction that no other end is in aim; that the object of breeding sheep is to produce *mutton*, *wool*, and *fold*; that the mutton of this breed is confessedly not better than other mutton, of which the price * is a proof; and if a butcher is to be the judge (and who so proper?) *not so good*, as he will look to them for his tallow loaf in vain; that the wool sells at 20s. a tod, while other sorts of English wool sells at 45s.; and that as to the fold, they are certainly of all other breeds the most improper; hence the absurdity of giving 10 guineas for getting a lamb, intrinsically not better than other lambs; that getting lambs to make wethers for the butcher is the object they must come to at last, by whatever arts the journey may be impeded.

* Five-pence per lb.

Such arguments I have often heard ;—something may certainly be said on the other side.

No man that is a judge will deny, or question for a single moment, that this breed of sheep, whether intrinsically good or bad, has been improved more than any other in the kingdom. I have conversed with Norfolk, Suffex, Dorset, and Wilts flock masters, but I never heard any of them pretend that any very great improvements have been made in the last ten years, one or two men in a county excepted ; and not every where even one. If then there has been a greater improvement made in this breed than in others, it follows, in all fairness of reasoning, that those maxims, those principles, and that conduct, whatever they may be, which have had this effect, have been more successful, and ought *cæteris paribus* to be acknowledged better and sounder than those principles and maxims which have been applied to the other breeds of the kingdom. It must be confessed, that this is a fair induction from the premises, without begging any question in favour of this breed, or even supposing it to be intrinsically better than others. All now contended for is, that it has been more improved ; after all its amelioration, it may be inferior to whatever breeds you please, but it must be granted that the mode of advancement has been more successful.

Now what has that mode consisted in ? In one great leading point—In RAISING THE VALUE, and thereby

thereby *animating the spirit of exertion*. There are other inferior and secondary maxims, such as not felling but letting—not crossing but breeding in and in, &c.—but the vital principle has been a great MONEY VALUE.

If this is admitted, and that it must be admitted every one acquainted with the subject will confess at the first blush, it is next to be asked how has this been effected in Leicestershire? and why has it failed in other breeds?

I believe five guineas was the highest price a ram ever sold for in the Norfolk breed. From one to two guineas the common price, and they do not sell at one penny more at present than 10 years, perhaps 20 years ago.

Until very lately five guineas was the highest price in the South Down breed; but through the exertions, new in that country, of Mr. Ellman, Miss Hayes, and Lord Sheffield, improvements have lately been made, and they begin now to hear of ten guineas.

In Dorset and Wilts rams have been sold at about the same prices as in Suffex. I have obscurely heard even of 20 guineas being given for a Wiltshire ram, but the fact was not authenticated*.

* The spirit of breeding and *letting* began in Lincolnshire; I have not yet, which I hope soon to do, examined that county with sufficient attention. I do not name it in this passage because I do not wish to speak of it at second-hand.

It is remarkable, that in these counties, which are each in possession of distinct and much vaunted breeds, rams have not been *let*; they are sold, and at such low prices, that 20 guineas must every where be considered as the highest heard of. It surely deserves noting, that these breeds have been either very little, or not all, improved *at low prices*, while that of Leicester has been prodigiously improved at *very high ones*.

It is not that these breeds are incapable of improvement, they are all greatly capable of it, even on the ideas that respectively govern those countries. If a black face, and a black long leg, and a thick long horn, many times curled, are admitted excellencies in Norfolk, why not breed the faces still blacker, and the horns yet longer? If naked bellies, white faces, and horns falling back behind the ears are objects in Wiltshire, why not breed for those excellencies, so as to command them to more perfection? If rough heads and horns, sticking out from the head, be the marks of merit in Dorsetshire, why not carry such points further than any one has done yet? And if a patch in a speckled face is a criterion in Suffex, surely a brighter speckle and a thicker patch might be bred?

Now is it not a marvellous system, that amidst all this attention to these points, so utterly non-essential, or rather so ridiculous, these whites, blacks,

speckles, horns, and patches—that THE CARCASS should every where seem to be out of all contemplation, except in Leicestershire? It surely is fortunate that men should arise, who rejecting all these fooleries as nothing, have paid attention to the carcass alone!

But supposing Leicester wrong, and all the rest right, then comes the question pointed and apposite; why have not you made as great improvements in your horns, your legs, and your faces, as Leicester has in the barrel? Leicester has not stood still a moment, but most of you have been stationary these 20 years. Why?——Because you have not been pushed forward by high prices. If men could have been found to buy horns at 10*l.* an inch, or colour at 20*l.* a shade, is it to be supposed they could not have been bred? Thus have these flock-masters, wanted the right instigation to produce the points which they themselves consider as excellencies.

The reader, it is hoped, will do the justice to my argument to allow that it does not at all depend on which of the several breeds is the best; the chain of reasoning I wish to impress, is equally fair, whether all the fat of a sheep should be gathered into the intestines, or whether it should be spread on the back and ribs; the object being merely to prove that *high prices* are essential to *improvement*, whether you breed for head, horn, or loin.

It

It now comes to be enquired, what are the means to attain high prices? If we rely, as we ought to do, on practice and experience, rather than on supposition and theory, we must answer at once—certainly NOT those which have *failed* in so many counties; but, on the contrary, THOSE which have succeeded so greatly in Leicestershire. The debate seems to be at an end; the argument, or rather the fact, is decisive; the common conduct keeps rams at five guineas, a different one raises them to 500. How futile then to talk of imposition, of monopolies, and of humbugging. As raising the price ensures improvement, monopolies and humbugs are merit, if attended with this effect. Are the morals of the other counties so delicate that they would not sell a black face, or a long horn for an hundred pounds, if any one could be found to give it, lest they should be accused of a humbug?

I speak of *imposition* and *monopoly* lightly, because the accusation ought to be taken as more laughable than serious. If men associated in order to deceive; if they formed societies to support error, and laid down regulations to give freer currency to falsehood, the charge would be heavy indeed. But the supposition would be idle, because the object would be impossible to attain, the end of their association is clearly monopoly; but it is a monopoly honourable to those who can fix it;—it is a

monopoly of excellence; an attempt to secure the reward of merit. They have not a single assistance, not an atom of support, which the possessors of every other breed in England have not equally at command. Long, continued, and unwearied application have given them a superiority due to such efforts; if they associate to reap the benefit, by raising prices, let it be remembered that price is sale, and sale dissemination; the profit they receive arises from spreading what they conceive perfection—a monopoly of a complexion not common.

If these great outlines are supportable, the inferior touches are not of much account. Of what consequence rams being *sold*, provided all are to be *hired*? What objection to letting them in the most common of all methods of sale, that by auction? Does the owner or the auctioneer fix the prices of the goods, or the purchaser? If it is said that the auction of tups is not public, it no more than puts them on a par with the farms of half Ireland, and some parts of England, where landlords advertise to receive written proposals.

I cannot see any particular advantage in one mode of selling, over another; but as to there being any thing unfair, in either method, it is idle to assert it.

The

The way of shewing stock, not permitting store* sheep to be seen, and various other regulations are all matters of choice to the owner ; he has an undoubted right to arrange all these circumstances just as he pleases, and if 15 other men agree to do the same ; their right, by association, is not at all lessened.

All these questions turn but on one point ; do they tend to raise prices ? If they do, they are right and laudable ; for it is already sufficiently proved that price and improvement go hand in hand. And can any one be surprised that more care and attention should be paid to breeding animals that *let* at 500 and 1000 guineas, than to such as are *sold* for five ? What application of time, talents, and assiduity can be so profitable in agriculture, as that which is bestowed on examining stock of all kinds, with the most critical eye ; making journies into every part of the kingdom to discover individuals that may answer particular purposes ; by a happy selection and union of different qualities, to produce more perfect forms, and

* The reason given for not permitting lean sheep to be seen is that, the better the breed, the worse store sheep will look, they have very small bones and very little flesh ; but in bad breeds, there are large bones, and much coarse flesh ; and it is on this account that no breeder can tell what a sheep will come to by seeing it lean. I report what I heard ; I must confess I do not perfectly comprehend this, nor combine it well with the assertion that this breed will stand hard fare, by perfection of form and habit.

more beneficial habits: how is this to be done for low prices? Where is the man to be found that will say it ought not to be done, or that to do it is useless? How then, with the smallest degree of consistency, can any one find fault with prices that do instigate to such exertions, or with plans of any kind that tend to establish such prices? There is another consideration, that should convince every one of the unquestionable improvements, which must, in the nature of things, result from the height to which the spirit of breeding has attained in the central counties. Mr. Bakewell is admitted, on all hands, to have the lead; he lets at higher prices than any one else, and all agree that hitherto none has been able to rival him successfully. Can any one suppose that his disciples do not try? It is for this purpose, and for that of exceeding one another, that there is an unrivalled competition among them: every experiment tried, every effort made; every nerve exerted. The lead cannot be estimated at less than a superiority of profit of 3000*l.* a year; an object worth contending for; and a contention that cannot exist in activity, without great and incessant improvements being the consequence. It would be an affront to the reader's understanding, to remark that the PUBLIC GOOD is something concerned in this—to name it is sufficient—the conclusions are obvious.

Though I have sedulously avoided entering into the question of the merit of this breed, wishing to
adapt

adapt my reasoning to all breeds equally, yet one circumstance in the new Leicester sheep obliges me to mention a point, not so much for the sake of any merit, as for an observation I wish to impress. The fat of this breed is spread on the back and ribs externally ; but the butchers, it is contended in Norfolk, and at Smithfield, like better to have it gathered in the intestines.

The question that arises here is simply this, are butchers the masters or the servants of the grazier and the consumer ? The interest of both these classes is correctly the same. The grazier wishes to produce mutton at 5d. per lb. rather than tallow at 3½d. for most assuredly his grass is better employed to form the one than the other. The consumer, who thinks 5d. per lb. a high price, must desire to have more mutton brought to market, and less tallow ; these classes are surely *the public*, though a tallow-chandler did not exist. But what pretension has the butcher, a mere go-between, to demand the mastery of both parties ? He employs a given capital in his business, and will be paid a fair interest on that capital ; what to him, whether by mutton or by tallow ? The grazier produces what suits the consumer, would it not be a most extraordinary language to hear a butcher step in between them and say, *No, Mr. Grazier, you shall not produce what the consumer likes, but what I like ; instead of my having my profit on the mutton, I chuse to have it on tallow, and therefore you shall*

Qq 4 breed

breed for bead and horns, and pelt and tallow; for any thing rather than for mutton. Extraordinary as this might sound, yet it is the real fact. Hence let it be laid down as a maxim, that whatever breed may be on the carpet, whatever may be the discussion, no truth or common sense can result if the opinion of the butcher is not thrown absolutely out of the question. The public good to a magnitude of immense importance is in question; the breeder, grazier, landlord, and consumer, in a word, all the interest of all the classes of England, except of the butcher's, and not his interest, but his whim to be paid in one shape rather than in another;—can it be, for a moment, a question, who in this case is to give way?

This leading point must be disposed of, before any breed can be examined—if you are to breed not for consumers, but for butchers,—if flesh and fat are not the objects, but horns and bones*, and pelts and tallow, then, in the name of common sense, dismiss equally Leicesters, South Downs, and Rylands, and let the black-faced Norfolk, and the white-faced Wiltshires, pervade this kingdom†.

After

* The common proportion of a well fattened Leicester sheep is a little more than one ounce of bone to a pound of mutton.

† Before I quit the subject of live stock, I shall note the measures of a few I took. A tup 2 years old, greatest girt 4 feet 7 inches, smallest ditto 4 feet, length from behind the head to the rump 3 feet; several 17 inches thick from side to side. A 3-year old tup, greatest

After having expatiated so much on the high prices at which rams of this breed are let, I ought to remark that there yet remains an immense field of improvement, by interesting experiment, open for the curious in this branch of rural œconomy; that this is really the case will not be doubted, when it is considered in how many points all the better breeds of sheep are deficient; let us rapidly examine those most worthy of attention.

I. *The new Leicester.* Wool that sells only at 9d. per lb.; mutton inferior in flavour; and an incapacity of supporting the work of hard folding.

II. *South Down.* Carcass inferior in form to the new Leicester; wool inferior to the Hereford; and much inferior to the Spanish.

III. *Hereford.* So tender that they will not bear folding; wool inferior to the Spanish; and carcass inferior to the Leicester.

greatest girt 5 feet 2 inches, fore girt 5 feet, thick in carcass 20 inches, length 3 feet 7, length from his twist up to his rump, and along his back to his ears 4 feet 11, girt of his fore leg $5\frac{1}{2}$ inches, of his hind ditto $6\frac{1}{2}$. Two-year old wethers rise from 25 to 45 lb. a qr. The 9th of September, 1789, there was one of this breed, killed at Bakewell, in Derbyshire, only $2\frac{1}{2}$ years old, that weighed 10 score $2\frac{1}{2}$ lb. this, at 5d per lb. would be 4l. 4s. 6d. The weight, breed, &c. were, on a trial, proved in court at Leicester. Mr. Bakewell has bred his hogs also with much attention, he shewed me some pork $5\frac{1}{2}$ inches thick of fat on the rib.

Measure of a cow, D. breadth from hip to hip 2 feet, thickness below the rump 15 inches, length 4 feet 8 inches. Another 2 feet 1 inch in the hips. A very old cow, the only one left, by the famous bull Twopenny 2 feet 2 inches in the hip, 2 inches wider than Lady Washington, and the widest cow I have yet measured of this breed.

IV. *Spanish*. Carcass ill formed and much offal, from weight in parts that ought to be light.

These defects point out the breed yet wanting, and which should possess

- 1, Good mutton.
- 2, Fine wool.
- 3, Activity and hardiness for the fold.
- 4, Well formed carcass, and disposition to thrive.

It will be thought clear by many that such a sort of sheep has not yet been formed. It would certainly be very idle to say that such a sheep *cannot* be bred.

I do not, however, conceive it possible to form such an animal—without the assistance of all those four breeds—but I venture this as a conjecture, it is an experiment that merits great attention. If ever it is successfully made, it will be owing, not inconsiderably, to the unwearied attention, and fortunate event of Mr. Bakewell's exertions, who has so instigated mankind in this useful path, that unthought of discoveries may be the consequence.

I shall not take my leave of this most celebrated breeding district without making an observation, which, however it may be taken in Leicestershire, impartiality demands; it is that the meritorious and unrivalled exertions made in this county have been in my opinion, beyond all comparison, more successful in sheep than they have been in cattle. Compare the carcass of one of their rams or ewes,
or

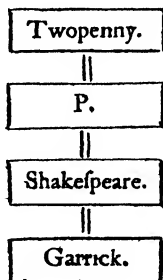
or wethers with that of any other breed in the island; and you will find a superiority in form and fatness, and quantity of food eaten, proportioned to the live weight, that will leave very little doubt in the mind of any unprejudiced person; but examine a bull or a cow of their breed, and you meet with very little conviction of superiority over several others. In quality of flesh, in disposition to fatten *generally*, and in smallness of offal, the Suffex and Devonshires, are equal to them. In soft mellowness of handling; in thinness of skin, and smallness of bone, those breeds exceed them; for though I have handled some individuals that have felt remarkably well on the rump and hip, yet I have touched several others, of very high price, that have handled less to my mind than many Suffex have done. In quantity of milk, the Suffolk beat them out and out. In nimbleness of step, and ease of motion, for work, Suffex has far the advantage, being at the same time of a size (not the case of the Devonshires) to draw great loads. In the article of quantity of food consumed by a given weight of beef, there are no experiments offered to one's consideration, which is not the case with their sheep, which have been carried through some very interesting trials of this sort, and much to their advantage*. In killing them also, and comparing the proportion of offal, the sheep have been remarkable for their

* Which ought to be published. Why not?

merit ; but not a whit of such trials have been made with oxen of this breed. Such, and various other points, remain to be ascertained, and highly merit the enquiry ; when such experiments are made, the result may occasion a different opinion ; but till such decision is given by fact, we must hazard our reasoning on mere observation, though so often falacious. Of the great black breed of horses I say nothing ; if a great size and weight are wanting, oxen ought to supply their place ; if lighter cattle will answer, there are many sorts preferable in my opinion to this ; but experiment only can decide. Through the medium of what breed, will a given weight of hay and oats move a given weight of load ?

Measure of a stallion :—Shoulder-points, 1 foot 10 inches : length of back, 2 feet 3 inches ; thickness through, 2 feet 3 inches ; thick before, at shoulder-points, 1 foot 11 inches ; thick in the haunches, 2 feet ; girt, 7 feet ; girt of his fore leg, 10½ inches.

Bull Genealogy.



It is to be regretted that Mr. Bakewell should have had the whim of *letters* instead of *names*; it leads to nothing but confusion; you soon get to a printer's alphabet, G g, H h; and if others were to do the same, names must be added Bakewell's K, Paget's B, &c.

In the evening of the 11th, to Loughborough, where I viewed the paintings of live stock, by a very ingenious and able artist, Mr. Boltby; among them, the famous bull Garrick, and the cow Brindled Beauty.

Very few inclosures have answered better than that of Loughborough, in which the common rights, which, before the inclosing, sold at 10l. each, arose to 50l. and since even to 70l.; and the land that was at 7s. is now at 40s. Yet great as this is, it does not equal an instance, I heard the other day in company, of Welby, near Sleaford, where heath-land, that let at 10d. an acre, rose on the inclosure to 10s. and 12s.

Slept at Leicester, a place thriving very rapidly, and much improved since I was here before. The stocking-manufacture is in such demand, that they cannot get hands to answer it; a man with an engine, earning from 20s. to 30s. a-week.

The 12th, to Uppingham, twenty miles; the first ten mostly rich grass-land, inclosed, and let at 20s. an acre, mostly ridge and furrow.—From Blisden to Uppingham, ten miles; rich pasture
for

for near half the way, but then declines, is more hilly, some rough, and much arable. Three or four miles before Uppingham, there is a high and most dangerous causeway, to exemplify Messrs. Wilkes and Bakewell's ideas of road making, and near it a hill, where the road is flat and rather concave; there good and safe; not the only place in which I have found their theory strongly proved.—About Uppingham, average rent 20s.; some 30s. Graze many west country cows; used formerly to buy Irish; but have left them off, from finding them not equally profitable.—To Wandesford, fourteen miles, arable, much inferior, some open: rent 10s. or 12s.

Slept at Wandesford: country declining in value greatly.

The 13th. To Peterborough, crossing an open field, but sown by agreement with turnips, which are fine and well hoed. The soil a good gravel at 15s. Great common meadows on the river.

Peterborough is much improved by parliamentary pavement, made since I was here before.

To Chattris 20 miles, the chief of it a fen country, but drained; some noble crops of oats, not less than ~~an~~ ^a half an acre, on cool bottoms; also good wheat; great distress through all the country for want of water, some cattle driven away on that account; land lets from 5s. to 30s. an acre. At Chattris there is much gravel. They have a great
common

common divided and ploughed, and much let at 30 to 35s. an acre. Course, 1, pare and burn and sow cole-seed for sheep; 2, oats; 3, oats; 4, oats; or one crop of wheat and two of oats; a last an acre of this grain not uncommon, and of such as sell at 9l. a last. Water more wanted than any thing else; and the new Lynn cut will sink them four feet. All the way from Peterborough the fish are dead in the canals for want of water.

A thousand of turf, which sell at Chattris for 7s. reckoned equal to a chaldron of coals. Reach Ely in the evening, through a district of dry arable 20s. an acre.

The 14th. Return to Bradfield, by Fordham, Soham, Freckenham (much good land at 15s.), and Cavenham, &c. before travelled and minuted.
